

INSIGHTS FROM VETERINARY  
INTERPROFESSIONAL INTERACTIONS:  
IMPLICATIONS FOR INTERPROFESSIONAL  
EDUCATION (IPE) IN THE VETERINARY CURRICULA

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Thesis submitted for the degree of Doctor of Philosophy

## **Declaration and Word Count**

I hereby declare that, except where explicit attribution is made, the work presented in this thesis is entirely my own.

Word count (exclusive of appendices and list of reference): 99,996 words

Signed:

A handwritten signature in cursive script, enclosed within an oval. The signature appears to read "Tierney Kinnison".

Tierney Kinnison

## **Abstract**

Historically veterinary surgeons were trained, worked and developed in isolation. However, due to increasingly complex care and public demand for quality but cost effective treatment, veterinary practices have evolved into team based organisations comprising of several occupations. Veterinary nurses are an important example and have recently undergone professionalisation in the UK. Other specialised occupations are developing in parallel including practice managers and receptionists.

This research focused on veterinary interprofessional working and learning (IPW/L) utilising an overarching case study design, incorporating social network analysis (SNA) to map patterns of IPW/L and two embedded case studies to explore interactions. The embedded case studies consisted of general observations, shadowing selected individuals, interviews and artefact collection. Adaptations of theoretical frameworks including Engeström's Cultural Historical Activity Theory and knotworking, Hutchin's distributed cognition and SNA concepts of boundary crossing and homophily were utilised. Emergent themes from the data were confirmed in an iterative process through triangulation.

Facilitators of veterinary IPW/L include trust and value, hierarchical organisation of work, formal infrastructure and different perspectives. Key people were identified as linking the team. Challenges to IPW/L include temporal and spatial nature of work, hierarchical organisation and contrasting professional motivations (care vs cure). Rich interactions are based on experience in contrast to solely professional status. Outcomes of challenges include poor communication leading to errors and blame. These findings have implications for interprofessional education alongside implications for policy and practice if teamworking is to be improved in the interests of animals and their owners.

This thesis represents the first instance of researching veterinary IPW/L in practice, and by making use of novel methodologies and theories in this context, it has identified both the importance of the team dynamic and factors contributing to compromised patient care.

## **Dedication**

For the ever growing VetEd community,  
and my wonderfully supportive family and friends



## **Acknowledgements**

'The winding path to a PhD in veterinary education' was the title of an article I wrote with Sylvain Dernas for 'The Veterinary Record'. It's certainly true. I am very fortunate that since 2006, PhDs in veterinary education have been growing in number. There is therefore a lovely community that is happy to share its experiences and encourage others along their own path. I hope to be part of bringing this community together for many years to come.

My fortune in timing extends to my thesis topic. Interprofessional working in veterinary practices is constantly growing, and the ongoing changes in policy, make this phenomenon an area worthy of study. It is an area with such potential, that I first must thank my supervisors, Professor David Guile (Institute of Education, University College London) and Professor Stephen May (Royal Veterinary College), along with my upgrade examiners, for reeling me in & keeping the research realistic.

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## **Chapter One: Introduction and Context**

### **Introduction**

In this thesis the interactions of veterinary professions and occupations in practice will be explored. The focus of the investigation is on veterinary surgeons, also known as veterinarians, and their relationships with other professions and occupations, primarily veterinary nurses but also including, for example, practice managers. With progress in the professionalisation of some veterinary occupations, these relationships are likely to be in flux and traditional hierarchical structures may unravel. Understanding of these changing interactions provides insights into the requirement for, and style of, veterinary interprofessional education (IPE) and should form recommendations for colleges, practices and governing bodies for future curricula. The recommendations will concern training the 'veterinary team', in order to better prepare students for working in the modern day veterinary field, and therefore produce effective teams with better working relationships and ultimately with the aim of providing better quality care for patients and clients.

Putting the thesis in a personal context, I am neither a veterinary surgeon nor a veterinary nurse; however I have some experience with veterinary para-occupations as I studied Animal Behaviour (a potential pre-cursor to becoming a pet behaviour councillor) at university and worked as a veterinary receptionist at a charity clinic in London for a short period of time after leaving university. Since that time, I have worked as a Research Assistant at the Lifelong and Independent Veterinary Education (LIVE) Centre at the Royal Veterinary College (RVC), University of London. I have worked on educational projects with both veterinary lecturers and students, and veterinary nurse lecturers and students, who all reside on one campus in Hertfordshire. I have become increasingly interested in the relationships between the groups, considering my education, my experiences working in a veterinary practice and the lack of interprofessional undergraduate education. And so this thesis was born.

To begin to understand the current veterinary field, first a look into the history of the profession(s) is required. This chapter will address the context of the thesis with regard to veterinary professions and occupations. The first section of the chapter will describe how the veterinary profession arose, displacing the historical occupation of farriers. The second section will compare this professionalisation with

that of medicine, to put the veterinary field into context. In the third section, the recent and current professionalisation of an occupational group – veterinary nurses – will be discussed. Interprofessional relationships between veterinary surgeons and veterinary nurses will be introduced in the fourth section. Please note that throughout the thesis the term ‘interprofessional’ will be used even for relationships between a profession and an occupation, or two occupations. This is justified as the important consideration relates to the interaction between groups which differ in their focus and expertise, rather than specifically in their professional status. However status is an important aspect of interprofessional working and the classification of a profession or an occupation, and the status of veterinary groups are considered in later chapters. In the fifth section of this chapter, other veterinary occupations will be described. Finally the chapter will introduce the broader literature on professions which will then be expanded upon in Chapter Two.

## **The Development of the Veterinary Profession**

### **Veterinary Schools and Legislation**

The following will describe seminal moments in the creation of the veterinary profession, titled “veterinary surgeons” in the UK and veterinarians in other parts of the world, which displaced the farriery occupation within the UK. It will also highlight those moments important to the evolution of interprofessional working in the veterinary field. In this light, veterinary nurses are paramount and are given much consideration, especially with regard to the recent advances allowing them to become a profession in their own right. Other veterinary occupations are also considered. It is vital that the progress of each of these occupations and professions is considered together, so that the current interprofessional nature of the veterinary team can be explored, understood and utilised, to produce benefits for the occupations and ultimately clients and patients.

Veterinary history is a substantial topic, and there are societies such as ‘The Veterinary History Society’ and researchers dedicated to investigating it. Key texts include Iain Pattison’s ‘The British Veterinary Profession 1791-1948’ (Pattison, 1984), L.P. Pugh’s ‘From Farriery to Veterinary Medicine’ (Pugh, 1962), Ernest Cotchin’s ‘The Royal Veterinary College London: A Bicentenary History’ (Cotchin,

1990) and Andrew Gardiner's thesis 'Small animal practice in British veterinary medicine, 1920-1956' (Gardiner, 2007). These, and other, works document the challenging and lengthy evolution of the veterinary surgery profession, a summary of which can be found below.

### Professionalisation of Veterinary Surgeons

Putting a specific date to the inception of a profession can be difficult, but for UK veterinary surgeons, it has been proposed that the date is 1844, when the Royal Charter was granted and the Royal College of Veterinary Surgeons (RCVS) was born. This is not to say that individuals were not 'treating' animals before this time; veterinary history can date back to circa 3000 BC when several instances of descriptions, art and writing pertaining to animal medicine can be found (Jones, 2010). Farriery was the first term used for animal medicine, consisting of horse-doctors (cow-leeches also existed), prior to describing the 'veterinary art', and the term 'veterinary surgeons', which had been used as far back as 1796 by the British Army (Pattison, 1984).

### The First Schools

An influential step for professionalisation was the first veterinary school, established by Claude Bourgelat in Lyon, France in 1761. Around this time it was largely considered that farriery and the veterinary art in the UK had long been neglected and that the establishment of a school was overdue (Cotchin, 1990). In a meeting of the Agricultural Society of Odiham, Hampshire, in 1785, Thomas Burgess had urged the consideration of the Society towards the important area of farriery, and described how by providing scientific study of horses, cattle and sheep, there would be benefits, to animals as well as commerce – however no instant progress was made in this new, non-agricultural, direction (Pugh, 1962). Thirty years after the Lyon school, the first successful English speaking veterinary school opened; The Veterinary College, London founded in 1791 in Camden Town which officially become the Royal Veterinary College (RVC) in 1875 (RVC, n.d.). The Agricultural Society of Odiham had come to recognise the importance of improving farriery, and the RVC was founded based on a plan of Charles Benoit Vial de St. Bel and the assistance and backing of the Society, especially one member, Granville Penn (Pattison, 1984). St. Bel had a varied career. He studied in Lyon, worked in the second French school, Alfort, then worked in a medical school, set up a veterinary practice, failed to establish another French veterinary school and came to England.

St. Bel met Penn, who realised that he had the knowledge and teaching experience missing in England, and so, St. Bel became the first Professor of the London College until his death in 1793, aged just 43. In addition to the untimely death of its creator, the school was troubled with a lack of finances throughout its early history; due in part to subscribers not paying and the cost of premises. Subscribers who did contribute tended to be medical men or involved with horses (Pugh, 1962), the early influence of both is clear, as discussed later in this chapter.

The second UK veterinary school was founded in Edinburgh, in 1823 by Professor William Dick, with patronage from The Highland and Agricultural Society (Pattison, 1984). The school is now the Royal (Dick) School of Veterinary Studies, R(D)SVS. For over thirty years, there remained one school in England and one in Scotland. Opinions regarding curricula (equine focus or all domesticated species), preliminary and qualification examinations (separate veterinary examining committee or university organised), ideal students (sons of farriers or those with a medical background) and other matters, repeatedly varied between the schools, and individuals including professors, governors and journal authors. This contributed to the lengthy process of development of the profession (Pattison, 1984). The expansion of the veterinary curriculum is discussed again later in this chapter.

### One Portal to the Register

As mentioned, professionalisation of veterinary surgeons began with the 1844 Charter which was once described by Carr-Saunders and Wilson as interesting as “it embodies an attempt, apparently unique, to raise a vocation to the rank of a profession by royal prerogative” (Carr-Saunders & Wilson, 1933). The Charter established the veterinary governing body, the RCVS, (RCVS Knowledge, n.d.-a) and saw the creation of the one portal examination, controlled by the RCVS. However this was quickly thrown into turmoil by Professor Dick who left the RCVS and formed his own Board of Governors, leading to the Highland Certificate for those qualifying from Edinburgh (Pattison, 1984). The Supplemental Charter of 1876 described the need for a Register to list members of the RCVS (MRCVS) and Existing Practitioners (someone who had practised for more than five years but was not a member of the college), and noted that members could be removed from the register through the power of the RCVS. The reasons for removal however, were not specified (RCVS Knowledge, 2015) and this did not occur until the 20<sup>th</sup> Century.

## Registration – The Veterinary Surgeons Act, 1881

With a Charter, but no corresponding law, it was not possible for any legal distinctions to be made between those individuals who had attended one of the RCVS approved schools and passed the one portal examination to become an MRCVS, and those who merely called themselves veterinary practitioners. The split between the existing schools' examining regulations meant that if any such law was introduced, those gaining the Highland Certificate in Edinburgh would not be recognised as veterinary surgeons – a situation unlikely to put the proposed law in a favourable light. Thirty five years passed before the Highland Certificate was stopped and all schools agreed to the MRCVS examination. With this union achieved, and backing from the Lord President of the Privy Council and the Royal Society for the Prevention of Cruelty to Animals (RSPCA), an Act of Parliament was sought. In 1881, Royal Assent was given, and the first UK Veterinary Surgeons Act came into being. The Act was vital for allowing individuals to distinguish between those who were entitled to call themselves a veterinary surgeon (an MRCVS or an 'Existing Practitioner'), and those who were not. This did not mean that other people were not legally allowed to treat animals; it simply meant they were not able to call themselves veterinary surgeons, or charge for their services. Many procedures on animals (for example castration) were accepted to be the remit of other occupations such as those in the agricultural community (including shepherds and herdsmen) and concern was raised by these individuals when they believed the Act might make these tasks the privileged responsibility of only registered veterinary surgeons. With existing exemptions for practising veterinary surgery (allowing certain people to do certain things), this was actually not the case (Pattison, 1984), at least not in those times.

Many developments in the field of veterinary medicine occurred over the following years, for example: advances in bacteriology, initiation of national congresses and the National Veterinary Association, new schools within universities (now including Glasgow, Dublin [originally The Royal Veterinary College of Ireland] and Liverpool), the Diploma in Veterinary State Medicine, increased research and publication through journals and the introduction of women into the profession (1922) (Pattison, 1984). Veterinary surgeons by the 1900s were not always acting alone, and many appreciated there was space for a caring role undertaken by non-practitioners, later to be described as nurses.

## Unqualified Practitioners and Professional Conduct – Veterinary Surgeons Act 1948

The problem of unqualified practitioners, who were able to treat animals as long as they did not claim to be specially qualified to do so, still remained, and was understandably seen as undesirable by qualified individuals. When considered in another way however, unqualified, but effective practitioners were beneficial for animals of the poor. The People's Dispensary for Sick Animals of the Poor, as it was known, set up in 1917 by Maria Dickin, had by 1928 an extensive teaching and treatment hospital dedicated to the welfare of companion animals, but run by unqualified individuals (Gardiner, 2014). It was the Act of 1948 which finally ended the dispute of unqualified individuals by making it illegal for anyone who was not an MRCVS (or on the Supplementary Register) to treat animals – whether they received payment for their services or not. The Act also introduced a Disciplinary Committee and the possibility of suspension (rather than simply removal) from the Register for acts violating professional conduct (Pattison, 1984). The most recent Act, the Veterinary Surgeons Act 1966, extended these responsibilities, creating a Preliminary Investigation Committee. Further, and vital to the evolving roles of veterinary surgeons in comparison to other occupations, several changes to the exemptions for practising veterinary surgery were introduced, including limitations on non-veterinary surgeons spaying and castrating animals including pigs and horses (RCVS Knowledge, 2015). The reduction in exemptions gave the profession a greater monopoly on veterinary services, which reflected their improved education, the perceived importance of such specialised services, and the increased appreciation of the profession's abilities by the public and government, which began after the Second World War with regard to food production (Pattison, 1984). The act was described as:

An Act to make fresh provision for the management of the veterinary profession, for the registration of veterinary surgeons and veterinary practitioners, for regulating their professional education and professional conduct and for cancelling or suspending registration in cases of misconduct; and for connected purposes. ("Veterinary Surgeons Act 1966, 1966 Chapter 36," 1966)

## Professional Development

When veterinary surgeons are admitted to the RCVS as members, they are required to make a declaration to abide by the required professional conduct, and to keep the welfare of the animals in their care paramount. To ensure veterinary surgeons

remain at a high level of skills and knowledge, they must complete at least 105 hours of continuing professional development (CPD) over a three year period (RCVS, n.d.-d). New graduates are also required to undertake the professional development phase (PDP) to assist with progressing from 'Day One Skills' to 'Year One Skills' (RCVS, n.d.-e).

### New Royal Charter, 2015

The most recent development has been the granting of a new Royal Charter on 17<sup>th</sup> February 2015. This Charter clarifies the role of the RCVS and ensures the regulatory functions are up to date. It also has important implications for the veterinary nursing profession which are revisited later in this chapter.

So far the focus in this chapter has been on two aspects of the Act and the RCVS's remit: registration and professional conduct. In the following section, the evolution of veterinary education will be considered.

## Curricular Change

### Change of the 'Type Species'

During the early stages of veterinary training, the overwhelming focus of the schools was on horses, due largely to the importance of the horse in transport and war, the riding master and horsemanship background of Claude Bourgelat (the creator of the first veterinary school) and the interest in equine anatomy and equine passions of other early veterinary school founders (Mitsuda, 2007). This dominance of the horse was also seen at the RVC, and although its first Professor, St. Bel, had images of training with all domestic species, this was not shared by the school's second Professor, Edward Coleman, a human surgeon (Pattison, 1984). By the time of the Royal Charter in 1844, UK graduates, especially from The Royal (Dick) School of Veterinary Studies had evolved from the equine/farrier focus of Bourgelat's school of thought, towards a health and surgery focus towards all domestic species. As Gardiner (2007) explains, small animals were treated by veterinary surgeons in large numbers during the late 19<sup>th</sup> century and into the 20<sup>th</sup> century. However, in 1828 only 16 dogs were treated at the RVC's infirmary, compared to 869 horses (Cotchin, 1990), and it wasn't until 1900 that Frederick T.G. Hobday wrote his book



'Canine and Feline Surgery', a dedicated small animal surgery textbook. A steady increase in urban small animal practice continued during, between and after the World Wars, with dogs taking over the role of 'type species' from the horse. After the Second World War, large animals also started to be treated, as opposed to the previous option of culling if not easily cured (Gardiner, 2007). The RCVS's surveys of the profession show that small animal work continues to rise to this day, while farm animal work is decreasing. The most recent survey in 2014, indicated that on average 76.8% of veterinarians' time was spent on small animals (mostly dogs), 7.9% equine, 6.7% farm (cattle, sheep, pigs, poultry) and 8.5% other (including practice management/admin) (Buzzeo, Robinson, & Williams, 2014). Within practice, veterinary surgeons work in small animal (companion/exotic), farm animal, mixed or equine practices, and it is not surprising that the majority now work in small animal focussed practices (Buzzeo et al., 2014). The 'market' for veterinary surgeons has changed, and now primarily consists of middle class individuals with pets. This market change also contributed to the increasing requirement of another occupation to fulfil the caring role, the veterinary nurses, discussed in greater depth later.

### Duration of Study

With the inclusion of species other than the horse, increase in areas such as pharmacology, toxicology and pathology and introduction of extra-mural studies (work based learning), the veterinary course has increased in duration since its inception (Gardiner, 2007), though not in a simple manner. The course at the RVC according to St. Bel's plan was initially due to last for three years; however the duration has fluctuated over the years in all schools. During 1796, Coleman shortened the RVC course to a few months, due at first to the demands for veterinarians to work with horses during war, but retained, most likely for financial reasons relating to a quick turnaround of paying students. By the 1860s as a result of pressure from the newly created RCVS, two years had become the norm. In 1892, at a conference for the discussion of veterinary education, there was a suggestion that the course could be no less than four years; this was embraced by the schools, with the first graduates in 1897 (Pattison, 1984). The increase to five years for the veterinary diploma was introduced by the RCVS in 1932 (Gardiner, 2007), and is maintained by all UK schools except Cambridge (1948) who have a six year system. To date there are seven UK schools offering RCVS approved veterinary degrees, in addition to those mentioned already are Bristol Veterinary

School (1949) and the School of Veterinary Medicine and Science at the University of Nottingham (2006). The School of Veterinary Medicine at the University of Surrey which opened its doors in 2014 is subject to RCVS approval.

## Examinations

It is important to note when discussing developing curricula that examinations were also adapted. The first examination took place in London in 1794 and demonstrated that after 18 months, Edmund Bond was fit to practice. Before the Charter, the examinations required for the diploma were oral and the Examiners Board were medical not veterinary men (Pattison, 1984). This powerful Examiners Board with the ability to control the standards of qualifying students came out of the Medical Experimental Committee, originally set up for a different purpose, “of suggesting and trying Experiments, with a View to throw light upon the Animal Economy, and to discover Effects of Medicines upon different Animals”, but who were required to assist with decisions of Professorships upon St. Bel’s death (Pugh, 1962).

Examinations continued to cause conflict, and as Pattison (1984) describes, in 1869 the RCVS set up an Examination Inquiry Committee to discuss entrance examinations. However, as would probably be expected, things did not run smoothly between the schools and their governing body. The latest school at the time, at the University of Glasgow, refused to accept the single entry examination. In 1872, a much desired practical examination was added to the final oral examinations; however this also had not come about easily, with London indicating trouble over the location. In 1892, when agreement was reached on a four year course, written as well as oral examinations were introduced, and it was claimed that the results of both changes were a significant improvement in the students’ proficiency (Pattison, 1984). Although the RCVS’s one portal entry to the profession had its critics over the years, the RCVS remains as the governing body to:

Register veterinary surgeons and veterinary nurses to practise in the UK, and regulate their educational, ethical and clinical standards (RCVS, n.d.-a).

## The Context of Other Professions

Veterinary surgeons are not the only group to have worked towards a Charter and Acts to protect their profession. To put this chapter into context, a brief look at the evolution of medical professions follows.

### Human Medicine

As described by Parry and Parry (1976), within human medicine, challenges arose due to the different disciplines of physician, surgery and apothecary; these 'orders' were hierarchical, with the physicians having the most power. The physicians received a Royal Charter in 1518 with an Act of Parliament to affirm it in England and Wales in 1523 (RCP, n.d.), both the surgeons (RCS, n.d.) and apothecaries later also received Charters and Acts of Parliament (The Worshipful Society of Apothecaries of London, n.d.). A vital advance was the Medical Act of 1858 (including many compromises between the professions) which led to a representative and nominated General Council of medical men, a self-governing situation with register, definition of appropriate degrees and power over examinations (Parry & Parry, 1976).

### Similarities – Veterinary Surgeons and Physicians

There are many similarities in the evolution of the veterinary surgery profession and the human medical professions. Examples include the need to halt unqualified practitioners and impose penalties on those pretending to be registered, objection to a single portal of entry to the professions and concern by the professions over competition from occupations lower in the hierarchy (in medicine's case, chemists and druggists).

### Human Nurses

At the time of the Medical Act, human nurses existed, and suggestion of a similar registration for nurses was voiced. As, it would appear, with all professions, the regulation of the nursing occupation was a lengthy process. A non-statutory voluntary register in 1887 was the first step, with the Nurse Registration Acts introduced in 1919, soon after the establishment of the College of Nursing in 1916. After many years, the Nurses, Midwives and Health Visitors Act (1979) came into being to address the quality and nature of training, and which also replaced the

structure of regulation with one council and separate boards. In 1983 the United Kingdom Central Council for Nursing, Midwifery and Health Visiting (UKCC) was established to take charge of the register and also professional misconduct complaints, until 2002 when the Nursing and Midwifery Council (NMC) replaced it (NMC, n.d.).

## **Growth of the Medical Team**

Therefore, by 1919 several medical professions existed (including those mentioned above: physicians, surgeons, general practitioners (apothecaries), nurses and midwives). With the rise of hospitals, the professions were brought close together but the hierarchical nature of medicine remained evident. Specialist consultants held superior positions to general practitioners, there was support from nurses and matrons, and in the late 19<sup>th</sup> century hospital administrators in the form of secretaries were introduced (Parry & Parry, 1976). This group of professions and occupations became a medical team and interprofessional working was a consequence. This concept will be discussed again Chapter Two.

## **Keeping up with the Professions**

### **Historic Rivalry**

Despite sharing similarities in their professionalisation, initial relations between the veterinary and medical profession were fraught. There was a perceived rivalry for students; Wilkinson has been cited as suggesting that medical students were not welcomed by Philippe Chabert at Alfort, (the second veterinary school in France) due to fears that veterinary students would feel that turning to medicine would be more honourable (Mitsuda, 2007). St. Bel had worked at Alfort and had negative experiences trying to make his way in a medical school; it is therefore not surprising that he brought his own personal tension with medicine to London. He was also concerned with the idea of medical students in his lectures, veterinary students going to hospitals and the level of influence of medical men in the progression of the London school (for example taking the chair at meetings) (Pugh, 1962). However, during the period after St. Bel's death before a replacement was confirmed, the Medical Committee arranged for students to attend lectures by their medical acquaintances and the students relied on attending these free lectures for their

education. It is suggested that as a surgeon, Coleman considered human medicine and surgery to be superior to the veterinary profession, and once appointed as the school's second Professor, he still encouraged his students to attend medical lectures on subjects which the small RVC could not offer - he also allowed medical men to attend the RVC - however he, and others, maintained that sons of farriers made the best veterinary surgeons due to their ability to recognise ailments and eagerness to learn (Cotchin, 1990). This type of preferred student dates back to Bourgelat who wished for his students to become farriers (treating horses) and to have no desire to go beyond this to treat other species; therefore an ideal student for him was a son of a farrier from the lower classes with just enough French to get by, as opposed to an educated man with a medical background (Mitsuda, 2007). However, as it has been noted previously in this chapter, the university taught veterinary students did become more than farriers, displacing and extending this old occupation.

### Continuing Comparisons

The desire for the same privileges as the medical profession contributed to the need for the Charter, for example exemption from jury duty, finally granted in the 1948 Act. Veterinary surgeons wanted to be on an equal footing with medical men; however their profession was seen as inferior, which contributed to the tension. Much comparison was made by the leaders of the veterinary profession with the Colleges of Physicians and Surgeons, for example William Ernes (a member of the first RCVS Council) wished that veterinary surgeons could at some point offer lectures and make scientific investigations, similar to physicians and surgeons (Pattison, 1984). The RCVS also looked to the medical professions (Royal College of Physicians, Royal College of Surgeons, the Society of Apothecaries and the Pharmaceutical Society) for assistance with a professional misconduct problem which troubled all groups – members advertising and charging increasingly low prices. Further, in drafting the Act of 1948, the term 'existing practitioner' (leading to the distinction between veterinary surgeons and veterinary practitioners) was based on the Dentists Act of 1921 (with dental surgeons and dentists); in this way, although not all veterinary practitioners may have agreed with it, Parliament could not fault the Act, and it was passed (Pattison, 1984). The concern regarding status still exists today and is demonstrable by a statement in the criteria for accreditation of veterinary schools by the RCVS which states:

Such a [veterinary] programme must be afforded the same recognition, status and autonomy as other professional training programmes in the institution and/or the state (RCVS, 2011).

It is anticipated that the 'other professional training programmes' in this case are likely to be for medicine and dentistry.

In the epilogue of Pugh's 1962 book on the early history of veterinary medicine, he states:

It is, of course, unlikely that curative medicine in animals will ever be attended with the same skills as curative medicine in man. The necessity is not there. The rewards of such specialization are only rarely there. The practical side of veterinary medicine, depending as it does more on economics than on sentiment, has become, and will become even more so in the future, preventative medicine – the maintenance of health, rather than the restoration of health (Pugh, 1962, p 133).

The fact that, 50 years later, veterinary surgeons overall now spend most of their time with small animals (Buzzeo et al., 2014), where sentiment is the driving factor, and restoration and maintenance of life is paramount, demonstrates the continuing evolution in the veterinary field and the closing of the gap between veterinary and human medicine.

## **The Professionalisation of Veterinary Nurses**

The professions so far highlighted, veterinary surgeons and human doctors, have a responsibility to be able to work together, especially in times of need, such as epidemics of zoonotic diseases. As a result, subjects such as public health are increasingly important within veterinary curricula. The interdisciplinary working between two fundamentally different professions in healthcare is often termed 'One Health' and due to its potential benefits for humans and animals, it warrants an increase in dedicated research. However, within the veterinary field itself, there are now several professions or occupations which work together on a more regular basis, something that this thesis will term interprofessional working (IPW). This thesis therefore looks inwards at the veterinary team, as opposed to outwards to One Health. Within the UK, the primary groups involved in veterinary IPW are veterinary surgeons and veterinary nurses. The progress of veterinary nursing will now be examined.

## From an Occupation to a Profession

### Rise of a Caring Occupation

During the evolution of the veterinary profession, the appreciation of the importance of nursing and care (in terms of health and wellbeing) increased, especially with the rise of small animals patients (Jones, 2011). In 1908 the Canine Nurses Institute was set up, offering some veterinary assistant training (Turner, 1990). Discussions between the RCVS and the People's Dispensary for Sick Animals (PDSA) during the 1940s regarding unqualified veterinarians (many of whom worked within the PDSA) led to the development of what has been termed in effect a nursing role; a position with no licence but limitations about what they could and could not do – the example given was not entering a body cavity (Gardiner, 2010). Traditionally a veterinary surgeon would train a veterinary nurse in an apprenticeship model. This often meant that although a nurse's skills were difficult to transfer to another working environment, in their own practice their roles and abilities were fully understood by the veterinary surgeon. The formalisation of veterinary nursing occurred much later than for veterinary surgeons. Although there was a request from a single small animal practice pre-Second World War for a formal RCVS qualification for canine nurses (Turner, 1990), it was not until 1961 that the RCVS introduced the first veterinary nursing training scheme in the UK. This was based on recommendations of the British Small Animal Veterinary Association (BSAVA). The graduates were known as Registered Animal Nursing Auxiliaries (RANA), due to the protection of the term 'nurse' within human medicine (Pullen, 2006). Since 1984 the term 'veterinary nurse' has been allowed. A colleague of mine, Hilary Orpet, who is a member of the VN Council suggested to me that this was a very important step for those practising the art.

### Comparison between Veterinary Surgeon and Veterinary Nurse Professionalisation

In terms of beginning with a school or degree, creating a list of practitioners, followed by an Act of Parliament and finally the creation of Preliminary Investigation Committees and Disciplinary Committees, the professionalisation of veterinary nursing has followed a similar pattern to veterinary surgeons, but in a much shorter and more recent time frame, as further described below. There are, however, also significant differences, for example, while the veterinary surgeon profession

displaced the limited occupation of farriers (apart from those classed as 'existing practitioners'), veterinary nurses evolved from the professionalisation of an existing occupational group. Veterinary nursing also does not have a separate charter; instead the regulatory body for veterinary nurses is also the RCVS. Nurses do have a separate Veterinary Nursing Council, which was created in 2002 from the original Veterinary Nursing Committee.

## Representation

Significantly, during the undertaking of this thesis, a new Charter was proposed and accepted by the RCVS. It was granted on 17<sup>th</sup> February 2015, demonstrating the timeliness of this research endeavour. The new Charter will enable the Veterinary Nurses Council to become responsible for setting standards for nurses' training, education and conduct (RCVS, 2015c). Further notes on the composition of the Council and its duties are provided later in this chapter. Veterinary nurses also have a representative body, the British Veterinary Nursing Association (BVNA), formed in 1965 and representing veterinary nurses as well as other practice staff (Bowden & Pullen, 2006).

## Amendment to Veterinary Surgeons Act 1966

It took 30 years (1991) for the role of veterinary nurses to be included into an amendment of an Act of Parliament - Schedule 3, Section 6, of the Veterinary Surgeons Act (1966):

Any medical treatment or any minor surgery (not involving entry into a body cavity) to any animal by a veterinary nurse if the following conditions are complied with, that is to say—

- (a) the animal is, for the time being, under the care of a registered veterinary surgeon or veterinary practitioner and the medical treatment or minor surgery is carried out by the veterinary nurse at his direction;
- (b) the registered veterinary surgeon or veterinary practitioner is the employer or is acting on behalf of the employer of the veterinary nurse; and
- (c) the registered veterinary surgeon or veterinary practitioner directing the medical treatment or minor surgery is satisfied that the veterinary nurse is qualified to carry out the treatment or surgery.

In this paragraph and in paragraph 7 below—

"veterinary nurse" means a nurse whose name is entered in the list of veterinary nurses maintained by the College.



Schedule 3 Section 7 was updated in 2002 to include details of permitted behaviours of veterinary nursing students. While Schedule 3 procedures are usually a limited part of the day-to-day role of a veterinary nurse (Hockey, 2006), this distinction between what qualified veterinary nurses can do, and unqualified people cannot, is important in the appreciation of the nurses' unique role in the team. It is interesting to note however, that the responsibilities which can make a nurse different from a lay individual, for example dental procedures (though not extractions) or second vaccinations, may not always be assigned to a nurse as they may also be the remit of a veterinary surgeon. In this way, criticism from veterinary surgeons regarding the 'over education' of nurses has arisen and has led to reports in the Veterinary Times regarding 'the great debate' concerning the trend for veterinary nurses to become mini-vets (Badger & Partridge, 2010). The education of nurses is revisited later in this chapter.

### Advances in Registration – From the List to the Register

Considering again the Act amendment in 1991, it is important to note how it described a '*list*' of veterinary nurses. The list however was not a strict form of registration, as individuals were not able to be struck off, there was no way to ensure competence (Bowden & Pullen, 2006) and the term 'veterinary nurse' was not (and still is not) protected by law.

Advances in registration have occurred in recent years. On 1<sup>st</sup> September 2007 the non-statutory Register of Veterinary Nurses came into operation. The Register was voluntary for nurses who qualified before 1<sup>st</sup> January 2003 who were able to choose to remain on the list of veterinary nurses, or to join the Register and become a Registered Veterinary Nurse (RVN) but was mandatory for those who qualified after this date (Wood, 2011). By joining the Register, RVNs accept greater responsibilities for their continuing education and their actions. They are required to adhere to the RCVS's Codes of Professional Conduct for Veterinary Nurses and must complete annual CPD (Jefferey, 2010); resembling the requirements of veterinary surgeons. Reasons hypothesised for listed nurses not joining the Register included the cost and time difficulties of this CPD. However these difficulties are faced by any profession required to undertake CPD. RVNs will also be held accountable for their actions, and in April 2011, a formal disciplinary system of a Preliminary Investigation Committee (PI) and Disciplinary Committees (DC), was created, mirroring that for veterinary surgeons. Serious professional

misconduct could lead to being struck off or suspended from the Register (Branscombe, 2011). The first instance of a RVN being summoned to a disciplinary hearing occurred in January 2013, the committee judged that the RVN should be removed from the Register (Alder, 2013). Since then two further veterinary nurses have undergone disciplinary proceedings and both were suspended (RCVS, 2015b). The ability to implement a just disciplinary system for an occupation who must still act under the guidance of another profession is another potential reason for nurses refusing to join the Register and is a complex area which requires due deliberation by the RCVS.

There were several reasons for the initial voluntary nature of the Register: cost, time, problems of keeping up to date with advances, and that having a voluntary Register is a necessary first step (Jefferey, 2010). Further to this, to ensure the competence of practising nurses, it must be possible for a nurse to be struck off the list, as well as the Register (Welsh, 2012). The new Royal Charter granted in 2015 has led to the move of all nurses who remained on the list to the Register, requiring them to undertake CPD and be accountable for their own actions with any serious professional conduct leading to being struck off and not being allowed to practice. This effectually makes the Register compulsory. Nurses may choose to subsequently be removed from the Register, but will then be unable to carry out Schedule 3 reserved tasks (RCVS, 2015d).

### **The New Charter, 2015**

The new Charter is a considerable achievement with many previous attempts at updating the profession through amendments to the Act being opposed. Steps towards this Charter took over a year. The RCVS announced on its website on the 13<sup>th</sup> December 2013 that it was launching a consultation regarding a proposal for a new Royal Charter (RCVS, 2013). On 11<sup>th</sup> July 2014 the motion for a new Charter was passed unanimously. The Charter was anticipated to clarify the modern day role of the RCVS, and recognise the formal regulation of veterinary nurses. The website stated that the Charter:

would replace the 1967 Supplemental Charter, with the most far reaching change being a proposal to make veterinary nursing a formally regulated profession on a similar footing to veterinary surgeons (RCVS, 2013).

It was approved at a meeting of the Privy Council on 5 November 2014 and came into effect on 17<sup>th</sup> February 2015 (RCVS, 2015c) and has achieved these aims. It formally recognises veterinary nurses as a profession within the veterinary field and provides greater responsibility for the Veterinary Nursing Council in terms of setting standards.

### Potential Challenges of the Charter

While many see the professionalisation of veterinary nurses as a positive step, contrasting views will always exist, even within the occupation. Although the initial evolution of the nursing profession did not displace another occupation (compared with veterinary surgeons and the disputes with farriers), the new status of RVN is causing some concern regarding nursing assistants (non-qualified individuals) and those veterinary nurses who chose to be removed from the Register, who will be increasingly limited in their role.

### Professional Conduct

Further to regulation, agreement on conduct is important for a profession, and in 2012 the Guides to Professional Conduct for both veterinary surgeons and veterinary nurses were replaced with concise and aligned principles based 'Codes' (RCVS, 2012). This is the first time that upon qualification, veterinary nurses will be required to make a declaration regarding their professional responsibilities towards animal care and welfare, as veterinary surgeons have always done (Jefferey, 2012). As with veterinary surgeons comparing themselves to the human medical professions, it is natural for veterinary nurses to compare their development to human nurses and veterinary surgeons, and this declaration appears to be one area where equality in the veterinary field has been a desirable step. The nursing codes also see the introduction of specific responsibilities towards the profession (Hamlin, 2011a), further highlighting the changing status of veterinary nurses.

### Summary

It has taken just over 50 years from the development of the first training programme to the stage of compulsory registration and disciplinary actions for malpractice or unqualified individuals. This is in stark contrast to the 175 years that it took from the inception of the first English speaking veterinary school to the Veterinary Surgeons Act of 1966 which advanced the disciplinary procedures. Individuals involved with

the professionalisation of veterinary nursing also compare themselves to human nurses. As noted above, there was 32 years between non-statutory registers and the Registration Act for human nurses. The advancement of the voluntary Register in 2007 to compulsory registration under the new Royal Charter in 2015 reveals this also occurred relatively quickly.

## Protecting the Title

Notably, the Charter does not protect the title 'veterinary nurse'. However a Private Members' Bill was submitted in May 2015 to the House of Lords which would legally protect the title. It would be the final step in professionalisation.

Within their field, veterinary nurses are now a profession, although the lack of protection for the title 'veterinary nurse' remains an issue under some definitions (Chapter Two). There is still therefore some way to go, and possibly conflicts to overcome, but with the increasing responsibility of nurses, their growing autonomy and accountability, comes a greater sense of pride (Hamlin & Kerr, 2011) and the professionalisation of an occupational group. Improvements in education have of course been vital.

## Veterinary Nursing Education and Curriculum

### Routes to becoming a Veterinary Nurse

There are currently two routes to become a veterinary nurse in the UK, a vocational Diploma or a higher education qualification. The vocational route was established first and is a Level 3 Diploma in Veterinary Nursing available through Central Qualifications and City and Guilds. Previously the RCVS Awarded the diploma, but they transferred this responsibility after 2013, in order to reduce conflicts in being both a regulatory body and awarding body (Hamlin, 2011b). The higher education qualification is more academic and more recent. Undergraduate courses started in 1998 and the first BSc(Hons) students graduated in 2002. There are now more than 10 universities offering the qualification. Within both schemes practical training and theoretical guided learning take place. The National Occupational Standards (NOS) - the "skills, knowledge and understanding required to carry out a job competently" for veterinary nursing – are provided by Lantra (Lantra, 2010), and must be adhered

to by both routes. If the diploma were to be abandoned, it is possible that individuals who could not afford, or do not align with the learning styles, of the theory-heavy academic degree would be lost to the profession. In response to the degree-only entry to human nursing, concerns have been raised over the lack of caring of qualified nurses, although this has been refuted by an independent inquiry (Willis Commission, 2012). For the present time, the two veterinary nursing routes are still perceived to have their place.

The RCVS Survey of the Profession in 2014 states that:

Day release courses are the most common among current students and recent qualifiers, with 55 per cent studying in this way, while 28 per cent are/were studying full-time degrees, and 17 per cent are/were studying block release courses (Williams & Robinson, 2014, p7).

### Veterinary Nurse Curriculum

Unlike veterinary surgeons, horses featured rarely in the curriculum, and a separation has formed between training for work with small animals or with horses, with the first equine nurses qualifying in 2000 (RCVS Knowledge, n.d.-b); however knowledge of handling horses is required in all nurses' education. As mentioned previously, dogs were the first species associated with nursing, but all small animals (including cats, rabbits and rodents) are now a daily part of a veterinary nurse's responsibilities, and the majority of veterinary nurses (68.8%) currently work in small animal practices (Williams & Robinson, 2014). Other notable areas of employment are referral practices (11.2%) and mixed practices (17.6%) - although work is still primarily with pets, while less average working time is spent with cattle/sheep/poultry constitute (0.7%) or equine (2.4%) (Williams & Robinson, 2014).

### Duration of Study

The first Animal Nursing Auxiliary had qualified within a year of the scheme being approved, but as with veterinary surgeons, nursing training has increased over time, and now typically stands at three years for Foundation Science (FdSc) and four years for a Bachelor of Science with Honours (BSc (Hons)) degree. The diploma generally takes three years to complete.

## Examinations

Reminiscent of the medical profession being the examiners for the veterinary surgery qualification, at the beginning of the veterinary nursing scheme, veterinary surgeons were the only examiners. Veterinary nurse examiners did not come into effect until around 1979-1980 (Turner, & Turner, 2011). Similar to medics and veterinary surgeons, there were bound to be strains in the relationship between veterinary surgeons and their now more established colleagues, veterinary nurses.

## The Relationship between Veterinary Surgeons and Veterinary Nurses

The relationship between veterinary surgeons and veterinary nurses is the overarching theme of this thesis. Veterinary surgeons have long utilised the caring nature and abilities of the nursing occupation and have been influential in their progression from occupation to profession. With veterinary nurses as a profession in their own right, the historical hierarchy within practices may be challenged. In this section the history of the relationship will be introduced, in preparation for its extensive investigation.

## Veterinary Surgeon Guidance

In comparison to veterinary surgeons, veterinary nurses are a young profession, and during the first training scheme little guidance was available for them. Help was therefore sought from veterinarians and their textbooks, with the first nursing textbook being written by veterinarians five years after the approval of the training scheme (Pullen, 2006). Akin to human physicians in the medical world, and the early veterinary field, and due in part to this control over textbooks and examinations (as mentioned in the previous section), veterinary surgeons were seen as a dominating force in the veterinary world, controlling the nurses, who were an occupation lower down the hierarchical scale (Pullen, 2006). With nurse examiners on the rise, and input into the main textbook from 1994 (Pullen, 2006), things began to change.

## Veterinary Nursing Council

However, as mentioned above, the RCVS Council retained the regulatory power over veterinary nurses and the Veterinary Nursing Council until July 2014. The Veterinary Nursing Council consists of an equal number of veterinary surgeons and (elected) veterinary nurses, eight, together with two lay individuals and representatives from groups such as the BVNA and BSAVA (Bowden & Pullen, 2006). It was not until 2006 that a veterinary nurse was 'at the helm' of the Veterinary Nursing Council (Badger, 2008). In 2010, the first and only veterinary nurse was appointed to the RCVS Council, Mrs Andrea Jeffery; this came about only through the decision of Bristol Veterinary School to appoint Mrs Jeffery as one of their two representatives. It has been suggested that veterinary nurses should not be included in the RCVS, and should instead maintain their own governing body – this is not generally considered to be the way in which nurses wish to grow, they maintain the importance (and convenience for clients) of a single body for the veterinary team (RCVS, 2015d).

## Potential Evolution of the Traditional Hierarchy

Veterinary surgeons had a long history with a clearly defined legal status, the perception of being an omnicompetent team leader and practice owner, and the knowledge that 'the buck stops with them'. While veterinary surgeons have for many years worked with individuals in a nursing or 'caring' role, allowing themselves to concentrate on the (traditionally more skilled) 'curing', or disease diagnosis, role, it is clear that because they owned the practices and were accountable for actions within them, they have maintained the tradition of holding the top of the hierarchy. However this may change. With veterinary nursing as a profession, and an appreciation of the unique talents that competent individuals bring, there should exist a more level status between the professions. It is no longer the case that the veterinarian has responsibility for a nurse's actions; they are each responsible for themselves. As such, it may be less likely that a nurse will agree to carry out a care plan which they do not personally agree with – however it is important to consider if it is their employer with whom they are disagreeing, and therefore a fear of losing their job immediately may outweigh their consideration of disciplinary action later. It is also noted that veterinary nurses and non-veterinary practice managers are starting to increase in practice ownership and therefore contribute to control of hiring and firing. Although a significant part of a veterinary nurse's duties will still be 'under

the direction' of a veterinary surgeon, much more agreement and perhaps compromise will be required in the actions of these new and varying veterinary teams, and it is unclear how decisions will be made if the two professions have different viewpoints. Issues may also arise regarding the partitioning of responsibility for errors.

## Disciplinary Procedures

Complaints towards both a veterinary surgeon and veterinary nurse will be investigated by the Preliminary Investigations together, however the Disciplinary Committee hearings will not, as both professions have their own responsibilities, set out in their Codes to Professional Conduct, and they may therefore be judged differently (Branscombe, 2011). As indicated above, to date there have been three instances of RVNs being suspended or removed from the Register. The second hearing related to Sally-Ann Roberts RVN. It charged the veterinary nurse with taking home a cat which a veterinary surgeon had previously agreed with the owners to euthanise. The veterinary surgeon, Przemyslaw Pawel Bogdanowicz MRCVS had jointly agreed with the Respondent that she could take the cat home to nurse it. Mr Bogdanowicz attended the Veterinary Disciplinary Committee seven months prior to Mrs Roberts. He was suspended for three months. The 'Decision on Sanction' for Mrs Roberts shows that the Nursing Committee attempts to be fair in its decision, stating 'The Committee was alive to the issue of disparity'; however there were 'differences in the nature and extent of the misconduct alleged' (RCVS, n.d.-f). The Committee considered removal from the Register as a disparity with the veterinary surgeon's suspension. Mrs Roberts was suspended for two months. In this case, both veterinary surgeon and nurse agreed that the mistake was a joint decision and took responsibility for their actions. In the first hearing however a veterinary surgeon reported a veterinary nurse to the Committee under concerns that she had killed a dog and in addition charged the client for drugs that had not been administered. The veterinary nurse was not found to have killed the dog; however was found to have been dishonest in making entries. The Respondent was removed from the Register for disgraceful conduct. A greater understanding of current and future working relationships and interprofessional interactions will be vital for creating successful veterinary teams.



## Veterinary Interprofessional Education

In this chapter there has been little mention of either students of veterinary surgery or veterinary nursing learning with members of other professions or occupations. The reason for this is that interprofessional education (IPE) is sparse within the veterinary field. Even within universities which instruct both sets of students, formal training is largely separate. It may be hypothesised that this lack of integration during student years may affect interprofessional working and learning within practice. Undergraduate IPE is therefore a potential area for consideration to address barriers to interprofessional working and is included in the final parts of this thesis.

While veterinary surgeons and veterinary nurses are two important professions within the veterinary field, and therefore warrant much consideration, they are not the only occupations focussed on animal care. The following section introduces the allied groups.

## Allied Professions or Occupations

As soon as the veterinary school in London opened its horse infirmary, they employed an assistant for the dispensary, a steward for the forage and smiths for the forge, all of whom worked alongside students, and took direction from the Professor (Pugh, 1962). It is unclear on the working relations, but this is perhaps the first example of veterinary surgeons working with other occupations. In the current day-to-day treatment and care of companion, farm and wild animals, occupations other than veterinary surgeons and veterinary nurses are still allied to the core veterinary team.

A timeline of veterinary allied occupations within the UK, integrated with UK veterinary surgery and veterinary nursing history, is attempted in Appendix 1. It is not assumed that all veterinarians will work with all of the listed occupations, however in the modern age the possibility for all collaborations exists. In this light, the list is unlikely to be complete and is continuously expanding. For comparison, the first column demonstrates key stages in human healthcare professions.

## The Farriery Profession

Farriery, as it relates to the original horse-doctors was displaced by the rise of veterinary surgeons. It is interesting to note however that the term 'farriery' has persisted and developed in a different way. Farriers are now exemplified by trimming horse's feet and the application of shoes. The Farriers Registration Act 1975 came into force when the Farriers Registration Council (FRC) was set up to maintain a register, and was followed by a supplemental Charter in 1983. Farriery currently has qualifications for diploma, Associateship, Fellowship and foundation degree (The Worshipful Company of Farriers, n.d.). Farriery is therefore the one allied group known as a profession. As the Code of Professional Conduct Supporting Guidance (RCVS, 2015a) states in regard to the horse's foot:

There is no clear demarcation line between veterinary surgeons and farriers in the exercise of their professional responsibilities, so that much depends on individuals and the relationship between them. Decisions as to whether a particular procedure should be performed by one or the other are a matter for consultation and cooperation. Veterinary surgeons should make every effort personally to discuss cases with farriers.

In the consideration of the equine practitioner-farrier relationship, various aspects are valued including trust, mutual decisions, checking understanding and communication. Interprofessional training experiences within continuing education are recommended (Moyer, O'Grady, & Werner, 2012).

## Veterinary Surgeon Control

Within work between veterinary surgeons and other occupations, the veterinary surgeon has historically retained much of the control of a case. In work with farriers, veterinary surgeons are still responsible for the complete health of the horse, including the feet (Moyer et al., 2012). Also, the Veterinary Surgery (Exemptions) Order 1962 allows the practice of physiotherapy (including osteopathy and chiropractic, but not acupuncture) as long as a veterinary surgeon has first seen the animal and has agreed to this course of treatment. With the increase in other occupations working alongside veterinary surgeons, the issues of power and control will be interesting to follow. This phenomenon is ongoing and the current thesis can only endeavour to take a snap shot of current working relationships with a view to assisting understanding of historical events and future evolution.

## Occupations in this Thesis

While some consideration is given to para-professionals the inclusion of the extended team, outside the walls of veterinary practices is limited in this thesis. As will be described, the more day-to-day and significant interactions occur within the practice itself. Here, four main groups are considered: veterinary surgeons, veterinary nurses, receptionists and administrators (primarily practice managers and Human Resources managers). Salient moments in the development of these groups are considered Appendix 1, however it is noted that not all training opportunities still exist.

No details regarding numbers of people in the practice were given in the latest Survey of the Profession; however the results from 2006 and 2010 indicate that practice managers were increasing; range 0-20 mean 0.5 in 2006 to range 0-40 mean 0.57 in 2010. Clerical/reception staff ranged from 0-50 mean 4.06 in 2010, there were no data for 2006 (Robertson-Smith, Robinson, Hicks, Khambhaita, & Hayday, 2010). This lack of data enforces the requirement to research all occupational groups within the increasingly influential issue of interprofessional work in the veterinary field.

## Professions in Sociology

In the following chapter the story of the professionalisation of veterinary surgeons and nurses will be considered against sociological literature. The importance of the status of being a 'profession' has been highlighted above within the history of veterinary surgery and in the recent aims of veterinary nurses. The title 'profession' portrays the understanding that the members have undertaken higher education, comply with professional codes, are maintained on registers and are trustworthy. Drawbacks to being a profession do exist, including those of dealing with risk, being someone to blame and antipathy due to the professions' necessary monopoly of markets. Chapter Two will deal with the developments of these two clinical professions. It will also consider the forces that have driven them to interprofessional working alongside administrator roles, and will introduce the challenges that this type of working generates.

## **Chapter Two: Assessing Veterinary Surgeons' and Nurses' Professional Status during the Rise of Interprofessional Working**

### **Introduction**

In Chapter One I described the historical process of professionalisation of veterinary surgeons, the recent professionalisation of a closely related occupational group, veterinary nurses, and the resulting changing relationships between these two occupations. In this chapter, I will revisit the professionalisation of veterinary surgeons and the plight of veterinary nursing with reference to sociological professionalism literature.

This chapter will begin by considering the sociological professionalism literature and explain how veterinary surgeons can be considered to be a profession and how veterinary nurses are beginning to, and have, fulfilled the current salient criteria. A particular focus will be given to Eliot Freidson's work on the Third Logic and Paul Adler et al.'s work on Collaborative Communities. These two proponents have a common link of considering the market, state and profession/community in their analysis of social organisation. Criticisms of both research areas have been raised and will be discussed in the chapter. It is thought however that they provide a buffer between the limited focus on market and state, and are therefore a suitable framework for considering the professional status of veterinary surgeons and nurses.

Specifically, the chapter will first address Freidson (2001)'s topics of a profession's characteristic knowledge and skill base, the closed or sheltered nature of the labour market and occupational, rather than state or organisational, control. It will consider the different pressures on professions even once they are established, and will then explore, primarily through Adler's work, the pressures which have led to interprofessional working and collaborative communities in the veterinary field. Adler provides an unusual and particularly helpful focus on exploring professions with reference to their increasing interprofessional work. The chapter uses a sociological lens to approach the topic of professional status, because it is only by this means that interprofessional issues are highlighted in the literature. The chapter then presents some challenges of interprofessional working and learning which have arisen within the medical field and are useful considerations for the veterinary field.

Finally, the chapter will introduce the methods that will be utilised in this thesis to research the interprofessional working of veterinary professions and occupations.

## **Literature and the Classification of Veterinary Surgeons and Nurses**

This chapter does not seek to add to debates within sociological professionalism literature, but instead aims to utilise the various concepts of a profession, while paying particular attention to Freidson (2001)'s third logic, to analyse the status of veterinary surgeons and veterinary nurses throughout their history, and to demonstrate how it is that they are entitled to be labelled professions now (or in the near future) but were not previously.

### **Definitions of a Profession**

The necessity to have a definition of a 'profession' and the subsequent definition itself are the subject of debate. Historical taxonomic classification lists have experienced criticism, and while they still exist and may provide insight, new more descriptive definitions are proposed (Brante, 2011; Evetts, 1999; Saks, 2012). To assess if a group has undergone professionalisation and is therefore now a profession or not, you may therefore compare its attributes to published professional trait lists (such as Wilensky (1964)), or you may examine their efforts to be acknowledged as a profession (Sim & Radloff, 2009) and compare this with the more descriptive definitions. This chapter will use primarily the latter. It will explore several attempts at defining a profession, with their consequential effects on veterinary surgeons' and nurses' standing. The sociological professionalism literature spans well over a hundred years and it should be evident therefore that the concept of a profession has not remained stable over time, but has evolved from the pioneering learned or status professions of law, medicine, the ministry and university professors, which emerged during the late medieval period (Adler, Kwon, & Heckscher, 2008).

### **Elements of Professionalism**

Eliot Freidson in his 2001 book describes professionalism as a 'Third Logic'. This logic is hypothetical, an ideal model, for comparing social organisation; the

alternative models being the free market and bureaucracy/organisations. Freidson (2001)'s defining elements of the professionalism logic include an abstract body of knowledge and skill; occupationally controlled division of labour, sheltered labour market and training with identifiable credentials; plus the ideology of helping the client/patient above personal gain.

### **Abstract Body of Knowledge and Skill**

At the very beginning of the veterinary surgeon occupation in the UK, when the London school opened in 1791, the body of knowledge and skill was not what it is today. In Coleman's early years as Professor of the college his published works on horses included radical treatments such as losing large quantities of blood, boiling water being poured over trimmed areas such as the head and lower leg and enemas of warm salt water (Pattison, 1984). It is safe to say however that there is now a large body of knowledge produced through research, specific and esoteric to veterinary surgeons. This knowledge is scientific and allows veterinary surgeons to use clinical reasoning to diagnose and treat patients, and therefore fulfils Brante's (2011) recent definition of professions as those "occupations conducting interventions derived from scientific knowledge of mechanisms, structures, and contexts". It is therefore clear that veterinary surgeons possess the salient professional characteristic of abstract knowledge/skill. The unique knowledge base of veterinary nurses is less evident due to an early reliance on veterinary medicine (whereby veterinary surgeons originally trained their own nurse to know what they wanted them to know) as well as looking towards human nursing. Subsequently this leads to a lack of published empirical and evidence-based veterinary nursing research. The situation has improved, for example the introduction of the journal 'The Veterinary Nurse' in 2010, and the publication of articles to encourage research publication, such as 'Research Methodology for Veterinary Nurses' (Bloor, 2011). There should be no doubt that veterinary nurses do have specialised knowledge and skills which allow them to perform many roles in practice. These may no longer, however, be the precise skills that veterinary surgeons once chose for them, and this therefore has the potential to cause dissatisfaction and friction regarding the roles a nurse can fulfil. Veterinary surgeons and nurses can be seen as two specialisations which ultimately work best, in areas such as small animal practice, when they are working together as two halves of a whole, or more realistically as two parts of the whole when other occupations are also considered. This is not to say that conflicts, such as confusion or disagreement over roles as

previously mentioned, do not arise from this type of working; this is an issue which will be explored further in this thesis. The particular issue of what defines occupations who work so closely together is the focus of the journal *Academic Medicine's* 2013 Question of the Year: 'What is a doctor? What is a nurse?' The editor of the article specifically highlights that "Having doctors and nurses as the dyad for this Question of the Year should in no way limit our thinking about the roles of the other members of the healthcare team" (Sklar, 2013). Although abstract knowledge is accepted for at least part of a veterinary nurse's role (Schedule 3 activities which lay individuals are not legally allowed to perform), a more definite notion of a nurse's roles and responsibilities, with complementary research, would add to their claim for professional status.

While knowledge is clearly a part of being a profession, not all authors would rank it so highly or simply. Indeed in Chapter One I did not equate just the increase in knowledge with the formation of the veterinary profession. Saks (2012) suggests instead that the defining feature of a profession is "exclusionary social closure in the marketplace sanctioned by the state". This highlights two features, namely the status of the labour markets in the division of labour and the approval by government.

### **Sheltered Labour Market – Veterinary Monopoly**

Martimianakis et al. (2009) argue that monopolies in labour markets are socially constructed, by the process of "boundary work", whereby professions seek to gain closure on the market for their specific services. Evetts (1999) suggests that the definition of professionalism relates to this boundary work, for the good of clients/patients through working with or against outside forces such as the state and legislative bodies. Boundary work also excludes other professions and expands the profession's own ideology and authority (Hall, 2005). Boundary work (also known as occupational demarcation) occurs both at the level of management and at the 'shop floor', on a day-to-day basis (Allen, 2000). Nancarrow and Borthwick (2005) describe two forms of interdisciplinary boundary changes: vertical substitution and horizontal substitution. The difference focuses on the status of the groups involved; therefore a paraprofessional adopting tasks previously attributed to a professional would involve vertical substitution. This tends to involve a level of control of the more powerful profession, for example veterinary surgeons traditionally maintaining control over the tasks they delegated to veterinary nurses. Horizontal substitution

occurs between groups with similar status (training and expertise). This is less likely to occur in the veterinary field than the healthcare field due to fewer occupations. However it may develop between the specialist paraprofessions, such as hydrotherapy and physiotherapy, if their roles lack clarity. Established healthcare professions have used managerial boundary work strategies to limit the expansion of complementary and alternative medicine (Kelner, Wellman, Boon, & Welsh, 2004). These strategies include demanding scientific evidence (but who judges the evidence?), integration of acceptable tasks (if it is good, we will do it or control those who do) and opposition to funding (meaning they cannot afford to try to prove their evidence base) (Kelner et al., 2004).

Evetts (2003) suggests that two prominent author's opinions on the degree of market monopoly differ. She remarks that Larson (1977) describes complete monopolies by professions in providing their service, while Freidson (1982) utilises the concept of market shelters to demonstrate that not all labour markets are completely closed. For veterinary surgeons, I argue that the complete monopoly holds, and that it has been driven by veterinary surgeons' boundary work, which consisted of integration and control of the only similar occupation, farriers, and a barrier to the development of any potential new rivals. The process which led to this monopoly had four highly influential stages explained in detail in Chapter One: 1. the Royal Charter in 1844, creating the RCVS, and suggested to be the point at which veterinary surgery was recognised as a profession; 2. the supplemental Charter of 1876, which specified a register and the ability to remove names from it; 3. the Veterinary Surgeons Act 1881, which protected the title and allowed only veterinary surgeons to charge for their services; and 4. the Veterinary Surgeons Act 1948, which made it illegal for anyone other than an MRCVS to practice veterinary surgery and implemented a Disciplinary Committee (RCVS Knowledge, 2015). These stages were not straight forward in their evolution. As described by Woods and Matthews (2010), in 1866 the RCVS failed to gain a Veterinary Surgeons Bill to halt unqualified practice. The reasons suggested included the disparity between the Scottish and English school's awards (see Chapter One) as well as the view that sufficient knowledge and skills were required to warrant a monopoly – something the government was unsure that qualified individuals at the time had. This view was eventually changed, in part via educational reform including written examinations, which excluded poor and illiterate individuals from becoming a MRCVS (Woods & Matthews, 2010).



Abbott (1988) suggests that central to a profession is its jurisdiction, the link between the profession and its work. He describes that in Britain, Parliament will protect professions' titles, but leaves the battles for jurisdiction to interprofessional competition (and discipline to professional associations such as the RCVS). This is largely true in the case of veterinary surgeons; however the most recent Veterinary Surgeons Act, 1966, does describe many specific duties of veterinary surgeons. Therefore, while there are some exemptions within the awarded legislation which allow certain individuals to perform certain treatments (such as "Any minor medical treatment given to an animal by its owner"), it is evident that, today, only those who have progressed through one of the accredited schools, are an MRCVS and have not been removed from the register, are legally able to carry out veterinary surgery duties. Veterinary surgeons therefore have closure in the market place, sanctioned by the state. However it is noted that there are recent pressures from government regarding deregulation, reducing their monopoly to save costs, for example by allowing non-veterinary surgeons to perform roles in farm animal work.

For veterinary nurses, the situation of the labour market in 2012-2015 (the period of this PhD) is different. The labour market is closing, but a monopoly does not yet exist. The non-statutory, register came into force in 2007 and was joined by a disciplinary system in 2011. Listed veterinary nurses (those who are qualified but have declined to join the register) were legally allowed to carry out the same tasks as registered veterinary nurses. Further to this, lay individuals can undertake much of a nurse's day-to-day responsibilities, with the exception of procedures under Schedule 3 of the Veterinary Surgeons Act; though it is acknowledged this would be without the knowledge and skill attributed to trained individuals. The situation is still complicated in 2015 whereby the new Royal Charter means that all veterinary nurses are automatically transferred onto the Register. However, they can request to be removed from it in order to be exempt from CPD and are not accountable for their actions, but may not conduct Schedule 3 tasks. With the title still unprotected, those on the list, and even un-trained individuals, in 2015 may call themselves veterinary nurses and carry out many of the tasks ascribed to a nurse. Protecting the title is a current aim of the veterinary nursing occupation. At present, therefore, with a register and disciplinary system which allows individuals to be removed from the register, the labour market resembles a shelter, which according to some, allows the occupation to be considered a profession. If the ambitions of protecting the title succeed, the labour market will resemble more of a monopoly (though not to the exclusion of veterinary surgeons) and veterinary nurses will be even more qualified

to be described as a profession; it is anticipated that this will occur in the near future.

The monopoly that veterinary surgeons hold, and veterinary nurses are moving towards, may be considered relatively narrow, focussing on the health and wellbeing of animals. As Abbott claimed, veterinarians are one of “the few who are content with limited jurisdictions”, calling them “atypical” (Abbott, 1988). Thirty years later, this can be disputed, due to an increase in veterinary surgeons input into One Health, public health and animal welfare. This marks the importance of ‘looking out’ and researching the One Health team; however this thesis remains directed at ‘looking in’ and researching the core veterinary team.

### Control of Division of Labour

Closely linked to the issue of the degree of market closure is the debate over who maintains regulatory control. Within Freidson (2001)’s third logic, control is completely held by the occupation themselves. The profession are suggested to control not only the labour market but specifically the division of labour, as Freidson writes, “exclusive jurisdiction in a particular division of labor created and controlled by occupational negotiation” as well as the occupation’s training, including the credentials (though this is sanctioned by the state) (Freidson, 2001). Evetts (2003) argues that this is only ‘partially correct’ and compares occupational and organisational professionalism. Occupational professionalism revolves around collegiality, autonomy and the normative value system including a professional identity and conformity of how to behave. According to McClelland (1990)’s classification, the professionalisation has occurred “from within”. Organisational professionalism on the other hand incorporates bureaucracy, hierarchy and the ideology of control. According to McClelland (1990)’s classification, professionalisation has occurred “from above”, by forces outside the occupation. Evetts (2003) remarks that more recently the normative values and ideology of control have become entwined. This is mirrored in Bourgeault et al (2011)’s report of the symbiotic relationship of many professions and organisations. There are many appealing aspects of being recognised as a profession for example, the prestige and status, authority and autonomy in decision making and expertise and knowledge belonging to that profession alone; these features do not necessarily depend on whether they are a target of the profession, or external forces from employers and managers of the organisations in which the profession provides a

service (Evetts, 2003). The veterinary surgeon occupation in the UK has always been controlled by the profession, specifically by the RCVS, formed at the time of the first Royal Charter (and is therefore sanctioned by Royal approval). The first president of the RCVS was Thomas Turner, a veterinary surgeon who had been instrumental in the battle for the charter. The RCVS currently has 42 Council members, 38 of which are made up as follows; 24 elected members who must be veterinary surgeons and two members chosen by each of the UK veterinary schools, of whom one must be a veterinary surgeon, the other may be a lay individual (non-veterinary surgeon) (RCVS, n.d.-f). Lay individuals may be considered important in order to ensure that the profession is continuing to put providing services to the client above personal financial gain. The RCVS Council maintains control over the veterinary nursing occupation, although a Veterinary Nursing Council exists, this is in actuality a Committee and not a Council. For the first time in history, in 2010, a RVN became a member of the RCVS Council and is, as such, involved in decisions involving both the veterinary surgery and veterinary nursing occupations. It can therefore be said that the control of the veterinary occupations is starting to belong to the veterinary occupations as a collective, or a team. This is not to say that there are no pressures from outside of the profession, and the remaining four Council members are appointments by the Privy Council; they can be veterinary surgeons or lay individuals. The government, or state, has always had a natural interest in the veterinary professions. Today the government maintains a close interest in veterinary affairs through the Department for Environment, Food and Rural Affairs (DEFRA) and issues such as zoonotic disease, One Health, and food production and hygiene. According to Lowe (2009, p72)'s report on veterinary expertise in food animal production:

The relationship between government and the veterinary profession is complex and longstanding, but has come under strain in recent years. There is an atmosphere of mutual recrimination around the UK's patchy record in animal disease control.

With a decrease in government employed veterinary surgeons from 1,017 in 1966 to 717 in 2006, there is a heavier reliance on private veterinary services for disease control and food assurance, which leads Lowe to suggest:

It is important that the relationship between the government and the veterinary profession be renewed, and placed on a sounder footing as a partnership that more clearly recognises respective roles and mutual dependences (Lowe, 2009, p72).

It is possible however that the government will seek more control, feeling that complete self-regulation is no longer a viable option. In considering medicine, which already experiences some pressures from government due to the existence of the NHS, reports claim that the public's trust in the regulatory system of the General Medical Council (GMC) has decreased in recent years, and that professional self-regulation is on a 'final warning' from the government (Allsop, 2006). GMC measures and reforms focussing on surveillance, such as introducing medical directors in clinics, more lay individuals into the council and CPD with revalidation requirements (2004) aim to keep the profession trustworthy. However it is questioned whether doctors will support this and if it will still be considered as self-regulating (Allsop, 2006). While the GMC takes a cooperative stance with other regulators and patient organisations, and has links with government, it maintains that:

Patients' interests are best served by independent, accountable regulation. The GMC must be independent of government as the dominant provider of healthcare in the UK (General Medical Council, n.d.).

The RCVS has made similar adjustments including increased numbers of lay individuals in its council, as described above, and mandatory CPD. Influence is seen from the government through such initiatives as the Veterinary Development Council (VDC), which is organised by the British Veterinary Association (BVA) but funded by Defra. The VDC has reported (VDC, 2012) that a farm animal veterinary-led team, including non-veterinarians, could increase the range and effectiveness, in terms of cost and time, of services to farmers; however legislation clearly restricts the activities of non-qualified individuals, and it is possible that the exemption orders may need to be expanded. As the report states, it is "not clear that the veterinary profession as a whole wants the changes in the legislation to allow the greater use of lay staff", whether or not they are under the leadership of veterinarians in a veterinary-led team (VDC, 2012). Maintaining the monopoly is not seen by the profession as a form of self-interest, but instead as a way to sustain the deserved trust in the profession for the good of the client and patient. Regulatory control remains by the profession, but with external influences including the client affecting roles, responsibilities and the actions that can be performed.

## Profession Ideology

Holding a monopoly can appear unfavourable to the general public due to the limit it imposes on free choice of who to employ. A monopoly should ideally assure the public that the services they receive are from individuals who have undergone a period of training, succeeded in gaining qualifications, and who abide by professional codes of conduct (with the consequences of misdemeanours being loss of licence). A profession's monopoly should encourage trust. Freidson (2001) acknowledges a potential vice of the third logic of professionalism; professionals might put personal financial gain above their ideology of providing good service to clients. Professions are recommended not to seek for the 'maximum' possible gain; while appreciating some financial gain is required for the continuation of their service provision (Freidson, 2001). This is an area where veterinary surgeons can experience conflict with their clients. Veterinary services are sometimes considered overly costly, due in part, according to the RCVS, to our unawareness in the UK of human healthcare costs, and therefore unfair comparisons with the free NHS (RCVS, n.d.-b). Costs of veterinary services have gained media coverage, for example The Telegraph's emotive "Expensive vet bills 'forcing animal lovers to kill pets'" (Hough, 2010) and the Daily Mail's "Why I'm ashamed to be a vet: a shocking exposé of the profession that puts pets through 'painful and unnecessary treatments to fleece their trusting owners'" (Squire, 2009). These examples exemplify the need for Day One business acumen, such as how to explain charges in order to maintain the trust of the public and the respect of fellow professions. It is noted that with increasing nursing clinics, a new and cheaper (sometimes free) option is opening up; instead of demanding to see the veterinary surgeon, clients are now often keen to visit the veterinary nurse. This may not simply be due to price, it has been suggested that members of the public may feel more comfortable and able to ask questions to veterinary nurses rather than veterinary surgeons, perhaps due to their lack of jargon in explanations (Barton, 2010). These clinics may be a way of regaining the favour of clients, and therefore demonstrate an advantage of veterinary nurses within practices.

It is therefore important that, within veterinary medicine, practitioners balance the needs and desires of several groups. While, professionally speaking, veterinary surgeons hold autonomy, their actions are actually collaborations, and as in medicine, autonomy is rarely 100% possible (Sim & Radloff, 2009). Given, of course, that the animal patient cannot speak, the owner of the patient maintains

autonomy for decisions over the care it will receive. The veterinary surgeon is the trusted expert and has a duty to guide the owner and partake in shared decision making, but (except in extreme cases regarding animal welfare) the final decision for treatment rests with the owner (May, 2012).

### Training and Identifiable Credentials

Returning to the credentials of a profession according to Freidson (2001), control is also required in the third logic over the training and the qualifications to become a member of the profession:

A formal training program lying outside the labor market that produces the qualifying credentials, which is controlled by the occupation and associated with higher education (Freidson, 2001, p127).

As explored in Chapter One, veterinary surgeons have a one portal entry examination system, introduced to identify individuals eligible to become members of the RCVS, with successful names being held on a statutory register. This entry system was undertaken by all of the existing (and is required of all future) UK veterinary schools. Each school's curriculum may vary, however "Setting and monitoring the standards for veterinary education is a key responsibility of the RCVS" (RCVS, n.d.-c) and this is achieved through formal visitations. It should be noted, however, that the RCVS makes recommendations to the Privy Council regarding the recognition of a new degree based on their monitoring of new schools. The RCVS does not control the number of veterinary schools or graduates, which is an important consideration in the recent arguments regarding new veterinary schools and a potential surplus of graduates. For veterinary nurses, credentials include completing a diploma or undergraduate degree. Once a nurse has joined the register, they become a RVN who is expected to adhere to the Code of Professional Conduct, complete annual CPD and be subject to disciplinary committees and being struck off the Register.

Codes of conduct, with normative values such as honesty and integrity, are another typical feature of professions. As described in Chapter One, in 2012 new Codes of Professional Conduct were released for veterinary surgeons and nurses. It is interesting to note that throughout the Codes, and within the declaration veterinary nurses make at registration, the RCVS governing body refers to veterinary nursing as a profession and registered veterinary nurses as professionals. This profile is an

important part of professionalisation according to Sim and Radloff (2009) and Weiss-Gal and Welbourn (2008). Protection of the profession's title and a clear understanding of roles and responsibilities are said to enhance the profile and validate professionalisation. Veterinary surgeons have a respected public profile, despite the existence of some controversial cases, as reported earlier in this chapter. The public profile of nurses is perhaps less clear. The profile of other veterinary related occupations is even less certain, and the public cannot be expected to comprehend their range of roles when they are not fully understood by other professions or even the profession themselves.

In summary, veterinary surgeons fulfil the salient characteristics of Freidson (2001)'s third logic, Evetts (2003)'s occupational professionalism, Larson (1977)'s complete monopolies and Brante (2011)'s science-based profession, and were mentioned specifically by Carr-Saunders and Wilson (1933), as a profession who rose from Royal sanction. Due perhaps to varying definitions of the term throughout history, veterinary surgeons were known as a profession upon the creation of the RCVS and award of the Royal Charter in 1844, which was before they had implemented a Register, protected the title or created a monopoly on practicing the art. In comparison therefore, for veterinary nurses who have already (post 2007) achieved many of these features; it is not unreasonable to call them a profession, as the RCVS does. I suggest that protecting the title would be the last stage of their professionalisation in accordance with the literature described above.

## **Pressures Leading to Interprofessional Working in the Veterinary Field**

In the following section, the changing nature of professions, with regard to an increase in intra and interprofessional working will be explored. The section will lead onto considerations of researching interprofessional working, the focus of this thesis.

### **Profession Instability**

Even if an occupation is identified as a profession, the nature of the profession will almost certainly not remain stable over time. One possibility is that they will appear to lose some of the qualities that made them a profession. Freidson (1984) and

Adler et al (2008) both discuss potential theories which describe a reduction in the self-control of professions, namely deprofessionalisation (an insufficient knowledge gap due to increasingly educated clients and a decrease in tasks due to the rise of similar, rival, professions) and proletarianization (loss of discretion due to employment and bureaucracy/hierarchy). Both authors dispute these positions, Freidson (1984) claims a maintained knowledge gap due to increasing professional knowledge and the introduction of new technology, and a continuation of work load for professionals, in response to deprofessionalisation, and highlights how employment is not a new phenomenon for most professions, whereby the individual professional, or the profession as a whole, retains autonomy in response to proletarianization. Instead he proposes professions maintain key features, but experience some change, through a formalisation of professional control, whereby one profession is still identifiable, but it can consist of individuals who take the role of admin elites or knowledge elites, with the remaining individuals being the 'rank and file' – who still maintain more discretion in their work than members of other occupations (Freidson, 1984). Adler et al. (2008) concur with this 'mutation theory' due to its ability to see professions as true professions, even when some control is acquired by state, markets and hierarchies. The authors depict the market, state and community (Freidson (2001)'s original ideal types of free-market, bureaucracy and professionalism) as being non mutually exclusive in reality; something which Freidson (2001) would have agreed with, as the models were never suggested to be attainable in the real world, however he would maintain that the profession must retain the majority of control. Adler et al. (2008) suggest that the market and hierarchy pressures in social organisation has led to multiple professionals working in organisations. This is especially useful in the consideration of the journey from uniprofessional to interprofessional work. The pressures within this journey are external, internal and interprofessional (such as, respectively, an increasing demand by the market for accountability, competition, and conflict over jurisdictions) and result in a collaborative community whereby individual practitioners join together and experience benefits including knowledge development and dissemination for a common goal.

### Interprofessional Collaboration

Adler et al. (2008, p366) acknowledge that they, as well as authors including Freidson, have previously considered collaboration as purely intraprofessional, they



now critique this idealistic view, which provided only a partial view of reality, and instead recognise that:

The collaboration demanded of professionals today is not restricted to peer professionals, but increasingly embraces peers from other professions (surgeons, for example, need to develop more comprehensive collaboration with anesthesiologists), with lower-status colleagues (with nurses), with clients (patients), with administrators (hospital management), with organized stakeholders (patient rights groups), and with regulators (JCAHO, government).

This view had been raised by Andrew Abbott in 1988 who described how previous literature had not attempted “to see these interprofessional battles as central aspects of professionalism” and had tried to rectify this through his book, *The System of Professions*, which he claimed “aims to show the professions growing, splitting, joining, adapting, dying” (Abbott, 1988). Abbott’s approach was in turn criticised by Freidson (2001) regarding the inclusion of too many occupations without sufficient status to be regarded as professions. It is possible to see, however, that interprofessional working is a complex and dynamic system.

This thesis considers it vitally important to view the evolution of professions alongside closely related professions or occupations, as they exist in the context of each other. Abbott explains that jurisdictional ‘vacancies’ and ‘disputes’ should be at the centre of analysis regarding the division of labour (Abbott, 1988). Recently, this has been achieved for example via the investigation of workplace artefacts such as drawings as representations of jurisdiction (Bechky, 2003). Even elite professions must work to retain their status and power, and achieve this through institutional work including for example theorising and defining, whereby they suggest they are the only one to have the knowledge and experience to avoid incorporating risk into work (Currie, Lockett, Finn, Martin, & Waring, 2012).

### Organisation Model – Human Medicine

As described by Adler (2008) above, and by Parry and Parry (1976) in Chapter One, the model of professions being brought together in an ‘organisation’ is exemplified by the rise of hospitals and the intra- and interprofessional working of the medical professions, creating a prime location for jurisdictional disputes, or jostles for jurisdiction. With regard to intraprofessional working between veterinary surgeons, this organisation model fits with the change from individual small practices to chains and corporate veterinary practices. According to the RCVS’s Surveys of the

Profession, the number of veterinary surgeons working as sole principals has reduced in recent years, and since 2014 is 5%; the largest category (57%) of veterinary surgeons are assistants (Buzzeo et al., 2014). Veterinary surgeons have followed the pattern of other professions, albeit more slowly according to Abbott (1988), whereby autonomous unsalaried individuals (such as solo practitioners) have become replaced by autonomous salaried individuals (working for professional peers) and heteronomous individuals (working for individuals who are not veterinary surgeons themselves).

### Specialisation Model - Veterinary

With regard to veterinary surgeons and nurses however, the organisation model does not fit completely. From their inception, sparked by the increase in the treatment of pets, veterinary nurses worked under and alongside veterinary surgeons. This interprofessional working therefore more closely follows specialisation of veterinary surgeons, reducing their roles through the introduction of a subordinate group, the nurses, to deal with increasing roles due to demand and complexity (Abbott, 1988). Veterinary surgeons, keen to concentrate on the skilled and respected area of curing were able to delegate routine tasks to this new subordinate group, over whom they had a high level of control. This has been described as a division of labour due to “dirty work”, whereby tasks that are likely to be stigmatising are delegated from high profile professions to lower ranked occupations (Nancarrow & Borthwick, 2005). These new colleagues were allowed to support and assist the veterinary surgeon in providing the role of caring. As with humans (Xyrichis & Lowton, 2008), animals are living longer and new treatment options are available, plus within veterinary medicine, owners tend not to resort to euthanasia until absolutely necessary and are spending more money on their pets. Animal care, just like human healthcare, has therefore become far more complex. Subsequently the caring role, including palliative care, has broadened over time. Likewise, veterinary surgeons cannot ignore the more holistic treatment of a patient, which comes with owners. Stereotypical dichotomies of treating disease versus caring for patients no longer exist in either profession (or with physicians and nurses as described by Romano and Pangaro (2014)). This reinforces the need for interprofessional working whereby each profession or occupation can become an expert in their field, but with common and complementary knowledge and skills, ultimately improving the welfare of the patient and the service to the client, as the whole is better than the sum of the parts (Xyrichis & Lowton, 2008). Patel et al.

(2009) highlight the importance of individual expertise, which when shared with another profession's expertise through collaboration, can lead to new knowledge and decisions, and can reduce redundancy (repeating tasks), inefficiency and omissions. Interprofessional work can therefore lead to specialisation, and this in turn creates interdependency and further interprofessional work. It is noted however that not all veterinary surgeons initially welcomed the idea of veterinary nurses (Badger, 2005). The existence of competing requirements of work and emotions towards other groups, and the subsequent actions of individuals is an important aspect of this thesis.

## Gender Differences

Gender has historically had an organising effect on specialisation (Freidson, 2001), especially when only men were allowed to sit university examinations, and this is clear in the traditional veterinary distinction with male veterinary surgeons and female veterinary nurses. The gender trend of veterinary surgeons has changed, and the Survey of the Professions in 2014 marked the first time that more than half of participants were female (53.8%) (Buzzeo et al., 2014). There is also a greater percentage of females in undergraduate education (76.2% females in the BVetMed course at the RVC in 2012/13). As Chapter One described, the veterinary nursing occupation was originally seen as a way of enabling women to get into work, and therefore represents a stereotypical divide of women caring and men curing from the very inception of the occupation. Females still dominate the profession, with males accounting for just 2% of practising veterinary nurses in 2010 and 2014 (Williams & Robinson, 2014). This may be linked to the limited public prestige of the veterinary nursing course. Age has also always affected specialisation (Freidson, 2001). Veterinary nurses tend to be younger on average than veterinary surgeons (Buzzeo et al., 2014). When this is considered with gender, it is evident that older male veterinary surgeons still exist, but are gradually being replaced by younger females. The survey of the profession demonstrates this as male veterinary surgeons have a higher average age (52 years) than females (38 years) (Buzzeo et al., 2014). Nurses remain younger still, and are almost universally female. This change in the makeup of veterinary surgeons may have an impact, perhaps a positive one, on the relationship between veterinary surgeons and nurses in the future. The topic of gender has not played a significant role in interprofessional research, and while it will certainly be held in mind, it will not form a primary part of this thesis.

## Business Advantages of Interprofessional Working

Aside from allowing veterinary surgeons to specialise, there are other benefits to veterinary interprofessional working. An obvious example is that employing a veterinary nurse to undertake roles that are not exclusive to veterinary surgeons provides a cost effective business strategy as nurse's salaries remain significantly lower than a veterinary surgeon's, due in part to their shorter period of higher education (although lengthening degree programme). As Getz (2012, p252) describes:

When the area of service is big enough to support two professionals, deploying a team of two with different levels of training will allow every task to be performed by a professional who is fully qualified to perform the service at hand but with significantly lower expenditure on education.

The ability of cheaper nurse clinics to gain the trust and confidence of clients, along with a moderate income, has been mentioned already in this chapter. The rise of larger veterinary practices has also added to the degree of interprofessional working. RCVS Surveys of the Professions (Buzzeo et al., 2014; Robertson-Smith et al., 2010) demonstrate an increase in veterinary nurses (registered, listed and unlisted) from an average of 3.2 per practice in 2006, to 4.2 in 2010 to 7.5 in 2014. It also highlights the changing nature of veterinary nurses, with a reduction in the average number of listed and unlisted nurses, but the introduction of registered nurses in 2010 (range 0-120 per practice) (Robertson-Smith et al., 2010). By 2014, 63.6% of nurses were Registered; totalling 3,438 compared to just 229 listed nurses (the remaining individuals primarily being students). When considering the factors which have influenced interprofessional working between veterinary surgeons and nurses, it is important to remember that just because two professions work alongside each other, as multiprofessions, it does not mean that they truly work interprofessionally, i.e. for the mutual goal of high quality service through interactive work ethics. In the example above, of a nurse undertaking duties that a vet could also undertake for benefits of cost, and possibly job satisfaction, it is vital for example that the professions know each other's roles and can delegate appropriately. There are also important legal considerations to delegation and role performance. In turn, to allow veterinary nurses to concentrate on new tasks such as clinics, another group, with a lower status, has appeared to undertake the "dirty work". These assistants also have levels within them, including trained animal nursing assistants (ANAs) who have a Level Two Certificate. It should be noted that

professions and occupations are not always in favour of delegating the traditional, lower status, roles that once made up the core of their work (Nancarrow & Borthwick, 2005). It is unclear if veterinary nurses wish to give responsibilities such as feeding and cleaning to another group in favour of advances in surgery or client communication.

Therefore, when other veterinary occupations are considered, both internal pressures such as the professions' desire to concentrate in one area of the increasing complexity of tasks (for example clinical diagnosis), and the recognition of the importance of the practice as a business, and external pressures from clients for value for money and quality customer service for example, have caused further interprofessional working. While small scale private practices may remain with a limited number of veterinary surgeons and nurses performing all the roles, it is increasingly likely that practices will be larger and even part of an organisation, such as a chain of branches, or a limited company, and will require internal administration and management (Abbott, 1988). Such practices will have receptionists who allow veterinary nurses to focus on caring for the patients as opposed to the clients, and a practice manager (often a non-veterinary individual) to take control of the finances of the business. Within these larger organisations, it is even more obvious that the modern day professions of veterinary surgery, and nursing, are expected to be commercially aware and to adhere to targets in performance indicators (Evetts, 2003).

### Public Demand for Para-Professions

The public's expanding knowledge and belief systems have contributed to the rise of other occupations. Those dealing with small animals (pets) have been able to earn a living by working on a referral basis with a practice. Examples include alternative therapists (physiotherapy or hydrotherapy) who may be preferred when compared to a reliance on medicine, behavioural therapists/councillors who may be consulted rather than the owner considering re-homing, surgical specialists who may be referred to in order to avoid euthanasia and pet bereavement councillors due to the increase in the prevalence of human-animal bonds in the modern day. With regard to large (farm) animals, state and public pressures have contributed to the growing field of meat hygiene. The occupation of food inspectors regularly work with both veterinary surgeons and farmers, who are in essence a client and an occupation. The welfare of farm animals is also a consideration of the public, and

organisations such as supermarkets and charities may work with veterinary experts to ensure welfare standards are met.

### **Multi-Faceted Benefits of Interprofessional Work**

Just as outcome measure of effective teamwork in healthcare teams have been proposed as including organisational benefits, team benefits and individual benefits (patients and team members) (Mickan, 2005), it should be clear that theoretically, 'good veterinary interprofessional practice' may have benefits for the practice, the individual team members, the client and the patient as well as the public. Veterinary surgeons can work in vastly different environments with varying pressures, whether they are the sole principal of a private practice in a small town, an assistant (employee) in a large scale firm of practices in a city, a specialist in a referral centre or someone who works with farmers and inspectors in a rural location. Whatever they finally choose, the university undergraduate experience must ensure that they are fully trained to deal with not only the type of cases they will see, but also the type of people they will meet and be required to work alongside. They must also be highly adaptable. The potential for jurisdictional change and the dependent development of professions on each other's jurisdictions means that new tasks may become part of a profession's responsibilities or old tasks may be lost; new occupations may arise and old ones may even disappear. As Chapter One explained, farrier is an example of this phenomenon. Farriers originally did everything, but their roles were taken by veterinary surgeons and they are now specialists purely on the foot.

Interprofessional working is not an easy process and is not necessarily welcomed by all stakeholders. In the case of the current thesis, the relationship with veterinary nurses is especially interesting, as the once closed monopoly on animal care by veterinary surgeons, is being extended to include veterinary nurses. It is unclear how the professionalisation of veterinary nurses has affected working and learning in practice to date and what might result from future collaboration.

### **Identified Challenges to Interprofessional Working/Learning**

There are several challenges, identified primarily from healthcare, which face interprofessional working due to the complex relationships between members of

different, but similar, professions working and learning together. Negative consequences may result from inefficient or ineffective interprofessional working and learning (from now IPW/L). These issues are now explored.

## Separate Training

Despite proficiency in their own realm, working with other professions does not necessarily come easily to members of any profession (Burke, Salas, Wilson-Donnelly, & Priest, 2004; Lingard, 2009). One of the underlying causes of difficulty in IPW is hypothesised as the separate training that professions and occupations experience. In medicine the separate evolution of the professions is seen through the different teaching and training experiences and unique philosophical approaches and can lead to ingrained boundaries between professions (Baxter & Brumfitt, 2008). Philosophical approaches and motivation for action in work are significant topics within this thesis and are considered extensively in Chapter Five's extended view of the challenges of IPW/L and in the implications of my research. The separate training of veterinary groups was explored in the previous chapter. Where the two groups did work together in education, during the early period of veterinary nurse training, this relationship mirrored the hierarchical working relationship. Today, the two groups of students rarely, if ever, experience formal undergraduate IPE within UK veterinary schools (Kinnison et al., 2011). Experiences of working with each other are attained through intramural placements and extramural studies (EMS). However experiences on placements can vary extensively depending on, for example, the practice and caseloads (Magnier, Wang, Dale, & Pead, 2014).

## Contrasting Status

Chapter One brought to light the different evolution of the veterinary professions. Veterinary surgery is a long standing profession, while veterinary nursing is a newer occupation, recently undergoing professionalisation. This historical difference means that the status and prestige of veterinary surgeons has been greater than their 'assistants', the veterinary nurse. Therefore, similar to the healthcare field (Currie et al., 2012), veterinary medicine has had a traditional hierarchical structure and a clear power difference between groups whereby veterinary surgeons were dominant and held total responsibility. Chapter Four will demonstrate that this



profession based hierarchy with consequent status differences still exists, at least in part.

## Understanding Roles and the Jostle for Jurisdiction

As these chapters have identified, veterinary surgeons may have once employed veterinary nurses as their assistants to undertake “dirty tasks”, but now veterinary nurses are a profession and are trained to perform many roles, once the duty of veterinary surgeons, creating a jostle for jurisdiction. As roles of one profession change, they impact on the professions around them, and a continuing understanding as well as acceptance of these changing roles is required. This necessitates respect between the groups for their roles (Van Schaik, O'Brien, Almeida, & Adler, 2014). Patel et al. (2009) in their description of individual and group expertise explained the importance of clear roles, even or especially, when there is potential for overlap. Without a clear understanding of the roles of professions (be they overlapping or profession specific) there is a blurring of the division of labour which results in inefficient work and potentially an underutilised and frustrated, or over-utilised and stressed workforce. It is important therefore that the professions have collaborative competencies (as well as, and opposed to common and complementary), which allow an individual to work with members of other professions, or any other group (Barr, 1998).

## Veterinary Nurses' Role and Responsibilities

Knowledge of veterinary nurses' overarching role and the responsibilities which this can comprise is especially important for veterinary surgeons with regard to the legality of behaviours. This understanding is not simple to achieve however, as veterinary students receive little education regarding a nurse's role, there is no definitive list of nursing responsibilities, laws are subject to continual change, and experiences within different practices vary. There are technical and professional aspects to the role, and even if the technical aspects are understood, the relational aspects may not be (Lingard, Reznick, et al. 2002). Depending on who they are employed by, veterinary nurses may or may not carry out their full range of potential responsibilities in their day-to-day life. Many aspects of a nurse's role are under the guidance of a veterinary surgeon and veterinary surgeons are able to delegate responsibilities to only those they consider to be competent. If the full range of



responsibilities is not comprehended by a veterinary surgeon, they may unknowingly restrict their staff's role. This ultimately could lead to performance issues with "problem staff" who behave negatively because they are dissatisfied, not because of factors such as laziness but through a lack of job satisfaction (Kinnison, May, & Guile, 2014). Underutilised staff in parallel with others who are doing everything have also been suggested to lead to a mix of conflict and burn out (Hall, 2005). An appreciation of potential responsibilities also enables the most effective treatment, including cost. This is corroborated, for example, within the context of general practitioners and pharmacists, whereby the pharmacist's role has changed extensively over recent years, and yet general practitioners have failed to make use of their increasing knowledge of therapeutics, and instead only utilise their product knowledge (Harding & Taylor, 1995).

There is a documented disparity between veterinary surgeons' perceptions of a nurse's role and nurses' own perceptions of their roles as identified in Robertson-Smith et al. (2010)'s Survey of the Professions. Figure 1 reveals this with regard to a nurse's typical day. Veterinary surgeons tend to overestimate a nurse's range of responsibilities, and consider nurses undertake caring for hospitalised animals and monitoring of anaesthesia more regularly than the nurses themselves do. The two instances of veterinary surgeons underestimating a nurse's daily responsibilities, according to the nurses, are with regard to assisting during surgical procedures and practice administration.

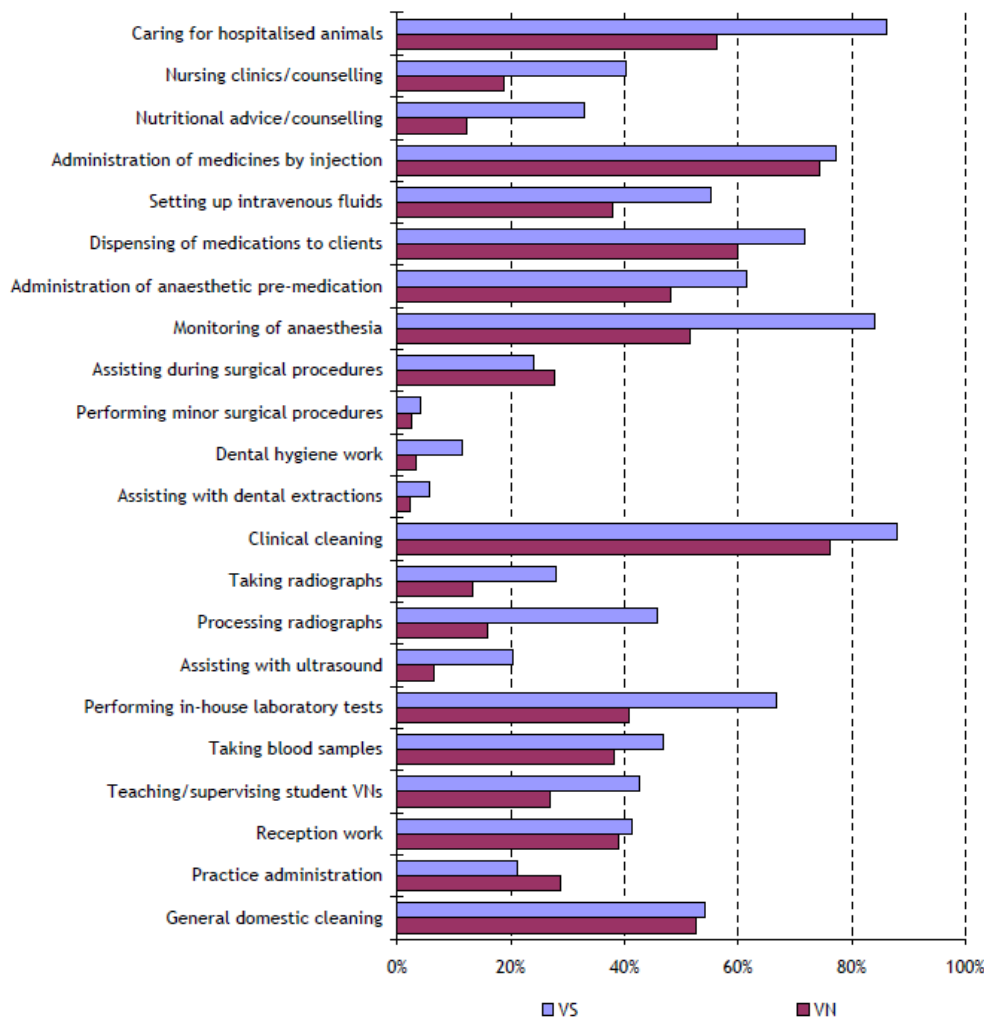


Figure 1. List of potential nursing responsibilities and the percentage of veterinary surgeons (VS) and nurses (VN) who stated that nurses perform the task every day (Robertson-Smith et al., 2010)

### Lack of Understanding of the Veterinary Team

The knowledge and subsequent decisions in leadership of veterinary surgeons within a practice can therefore have a large effect on IPW. The report on the most recent 'Survey of the Professions' did not consider the ramifications of this disparity. There is therefore a current lack of understanding of the veterinary groups regarding each other's roles and a lack of our understanding of the working and learning processes between professions. What this survey also does not promote is the notion that it is not just an understanding of roles of those lower in the traditional hierarchy that is necessary (i.e. vets knowledge of veterinary nurses), but for the

team to work successfully all groups within the hierarchy should be aware of, respect, and value, all other groups' roles and responsibilities.

## Communication

If understanding and respect of roles exists between professions, they must still communicate effectively between each other in order to provide appropriate care. Historically, when veterinary surgeons trained their own nurses, they spoke the same language. However, as highlighted above, a hypothesised precursor to the challenges of IPW/L is the modern day separation in training which exacerbates different approaches or viewpoints of the groups. This means that each group has its own discourse and language which is passed down from teacher to student. Ultimately, this can be a barrier to successful team working and is especially the case when differences in interpretation are not recognised and can persist until a moment of realisation later in the relationship (Carpenter, 1995). It is important that a collaborative interprofessional discourse (Barr, Koppel, Reeves, Hammick, & Freeth, 2005), a new language of integration (Carpenter, 1995) is created. This can occur in the field whereby language is one of the structured outcomes created and coordinated in the performance of a task (Hutchins, 1995). It is likely to involve the need for 'recontextualising', i.e. making professional specific knowledge more explicit (Guile, 2011) as explained further in Chapter Five. Having an understanding of other professions' meaning-making (including how professions make sense of knowledge and experience) and the professions' driving forces are considered especially important, but challenging, in interprofessional situations (Edwards & Kinti, 2010). An interprofessional discourse could also begin at the level of training, potentially through interprofessional education.

## Medical Systems Errors

The obvious and high profile consequence of differing views and inability to communicate interprofessionally within the healthcare field is medical error. Medical errors are not only caused by isolated human incompetence or acts of negligence (Kalra, 2004). Interprofessional issues such as hierarchy and management policies (organisational) and also work environment issues including fatigue and stress (system) are latent conditions which can contribute to error (Kalra, 2004). When latent conditions are added to an active failure (direct contact with a patient) and a local trigger (e.g. time pressure) it can create an accident opportunity (Reason,

2000). Notorious examples of error within UK healthcare include the case of Baby P and the Bristol heart scandal. Within the Care Quality Commission's review on the Baby P case it is stated that:

Poor communication [between healthcare professionals and partner agencies (social services and the police)] appears to have been an important factor in the inadequate assessment of Baby P's needs and the subsequent lack of action with regard to child protection (Care Quality Commission, 2009 p15).

The Bristol Infirmary Inquiry also cites recommendations regarding interprofessional working, including 'Communication skills must ... include the ability to engage with and respect the views of fellow healthcare professionals' (Bristol Royal Infirmary Inquiry, 2001 p445). Teams can address error through mutual performance monitoring and backup behaviour (redistributing tasks to underutilised individuals) (Burke et al., 2004).

Just as the benefits of effective IPW may relate to different levels including the patient/owner, veterinary team and the practice (as explained in the previous section), so the consequences of ineffective IPW relate to multiple levels including the team and the practice. The traditional blame model in healthcare (Liang, 2002) which searches for individuals at fault (Wachter & Pronovost, 2009) is unlikely to foster a team atmosphere and could create stressful working environments. The move towards no-blame culture is therefore positive. Lack of clear roles and confusion over autonomy also has potential to lead to stress (Mastekaasa, 2011). In general, effective healthcare teams have been suggested to increase job satisfaction, role clarity and well-being including social support (Mickan, 2005). Specifically, introducing a new group which reduces workload and improves interprofessional collaboration has been proposed to increase job satisfaction (Searle, 2008). In order to fully understand the benefits and challenges of IPW/L it is important to first explore the current structure of IPW/L and to then consider what are significant factors for the individuals involved.

## Researching Interprofessional Working and Learning

The aim of this thesis is to consider modern day IPW/L in the veterinary field. It is important to note that within this thesis working and learning are considered to be interlinked. When an individual works with another, as identified in later chapters,

they are likely to experience interactions that comprise learning, including asking for advice, taking on methods they have observed others to use and problem solving. My view of learning is therefore not restricted to direct means of a learner and a student, but also includes indirect means during work.

The thesis will reflect on the culture and the history that has led to the current situation of IPW/L. It will also look to the future in terms of means to improve IPW/L through education based on the evidence of real life.

Therefore over the following chapters IPW/L will be researched through further reviews of the literature as well as quantitative and qualitative mixed methods. The overarching study design is a case study. The case being veterinary IPW/L. The design includes two elements, which although presented in separate chapters, should be considered as part of the whole. The first element is Social Network Analysis and the second is individual practice-based (embedded) case studies. Together these methods will allow me to gain an overview of interprofessional interactions and to consider in more depth the working relationships within veterinary practices and the factors that facilitate interprofessional interactions. The implications of these findings will assist with making recommendations for interprofessional education. In the following chapter I will further introduce the methodology.

## **Chapter Three: A Brief Introduction to Methods**

### **Introduction**

The overarching approach taken within this study is that of a case study. The case, or main unit of analysis, is interprofessional interactions within veterinary practice teams in England. It is a case of changing interprofessional relationships during professionalisation of an occupation and the rise of additional occupations. As typical of case studies, multiple methods are used. In this project there are two distinguishable but interlinked stages of research: Social Network Analysis and embedded (individual practice) case studies. These methods will be outlined below and described in more detail within the introduction to their respective chapters.

Before considering the methods further, it is vital to consider the research questions of this thesis which have informed the methodological choices.

### **Research Questions**

The overarching research question was formulated after I carried out a pilot study as part of my Research Assistant work at the LIVE Centre, RVC, which aimed to create interprofessional education interventions (Kinnison et al., 2011). Suffice it to say, that while the pilot was successful and produced seemingly positive results, it also demonstrated that there is a general lack of research into the working lives of veterinary practice teams, principally veterinary surgeon and nurse interactions. The resources were developed based on students' and practitioners' opinions and did not involve empirical research into work experiences. This thesis aims to take a step back and take a more holistic view of IPW/L with the purpose of creating recommendations for developing future interprofessional education interventions. This view is reiterated by D'Amour and Oandasan (2005) who describe the interdependency between interprofessional education and collaborative practice in the health sciences and highlight the need for further research into this area and the concept of interprofessionalism.

There is therefore one overarching research question:

How do modern day veterinary teams work and learn together interprofessionally, and what are the implications for professional education?

This question will be approached through several smaller sections. Each section relates clearly to a research methodology, as described later within this chapter. Therefore the three sub-research questions are:

- a) What is the nature of veterinary interprofessional interactions in practice?
- b) How is interprofessional working and learning facilitated in practice?
- c) Why do interprofessional challenges arise, and how can they be resolved?

Ultimately, the thesis aims to provide an outcome of recommendations to practices and veterinary education institutions based on the results of all the research sub-questions.

To achieve the aim of addressing these research questions, this thesis uses mixed methods within a case study framework. These methods are described below and in forthcoming chapters. First it is important to note the epistemological standpoint of the researcher and the study.

## Epistemology

The ethos of this thesis is holistic study of a phenomenon, namely IPW/L within the veterinary field. Chapters One and Two sought to describe the professionalisation of the veterinary surgeon and veterinary nurse professions. It was emphasised that due, in large, to the jostle for 'jurisdiction' (Bechky, 2003), the changing nature of one profession must be considered alongside those of closely related others. Beyond the two main groups, are other occupations which are increasing in their abundance and consequently relevance within the veterinary field. This study therefore does not focus on an individual, or a single profession. Instead it looks at the social level, and the methods used reflect this design. Within this social approach, it is evident that context and culture of the organisations in which these groups work, is of paramount importance.

In addition to the focus of study being social, my construction of this thesis is collaborative between myself as a researcher and the study participants. As I describe in detail in Chapter Six, my status as a researcher is both as an insider and an outsider, and the concepts developed in this thesis are subsequently dependent on both me and the participants.

As a result, the approach fits with the social constructivism epistemology. Social constructivism is attributed to Vygotsky, who also developed the concepts of the zone of proximal development and activity theory, both considered in this thesis (Chapter Five). Within this social constructivism, knowledge is created socially and culturally, and learning is a social process. The understanding of the world, through processes of interpretation, are socially organised and affected by experience.

This is not to claim that individual's lived experiences of IPW/L are not important. Indeed, as Engeström (2008) describes, it is important to consider the interlinked 'macro history' of teams, as described above with relation to professionalisation, as well as the 'micro history' of teams, which consist of the local developments within a team.

My learning focus therefore relates to interprofessional workplaces. In accordance with several prominent authors in the field (as explored in Chapter Five), I argue that working and learning are closely interlinked within the workplace.

## **An Introduction to the Overarching Case Study Approach**

This thesis is a case study of interprofessional interactions of working and learning within veterinary practices in England. It is a case of changing interprofessional relationships during the professionalisation of an occupation (veterinary nursing) alongside the rise of additional occupations (receptionists and administrators). Two methods will be used sequentially under the case study umbrella; a quantitative questionnaire to map interactions and embedded case studies to investigate the interactions in depth.



## Case Studies

### Case Study Literature

Prolific authors in the area of case study methodologies are Robert K. Yin, Robert E. Stake and Gary Thomas. Their publications will be used to guide this introduction to case studies to explain the overall approach. Case study methods and strategies are embodied by the examination of 'how' and 'why' research questions in comparison to the more quantitative 'what', 'how many' and 'how much' (Yin, 2009). Case studies consider a complex contemporary phenomenon within its real life context. The phenomenon therefore cannot be manipulated. The phenomenon is investigated through multiple data sources (Stake, 1995; Thomas, 2011; Yin, 2009). The benefits of case studies therefore include the ability to research phenomena with multiple variables of interest, in depth (Yin, 2009). Through the various data sources, a case study provides a variety of lenses with which to consider the phenomenon (Baxter & Jack, 2008). Throughout his book, Thomas warns against generalisation, where we just apply the same understanding to other contexts, however he promotes the idea of abduction (the best explanation with current evidence for your case) and phronesis (personal models of situations based on practical knowledge which assist with understanding the situation) (Thomas, 2011). Others can make sense of their own personal contexts and experiences via understanding the theories utilised and developed by the case study. Similarly, Stake describes 'naturalistic generalisation' whereby readers will take the case and generalise it with their own lived experiences, and that this should be encouraged through the writing of the report (Stake, 1995). Yin explains how the understanding which can be gained through one case may be considered with 'theoretical propositions' (Yin, 2009), meaning theories can be anticipated and utilised for similar situations even though statistics are not used to suggest generalisation to populations. Understanding is therefore transferred and adapted, as opposed to simply generalised and applied. All three authors remind us that the primary value of the study is for understanding the case in question (Stake, 1995; Thomas, 2011; Yin, 2009).

### Relevance of a Case Study to Research Veterinary IPW/L

The overarching topic of this thesis lends itself to case study research. The phenomenon in question is contemporary, with the evolving situation of the

professionalisation of veterinary nurses and the development of the interprofessional veterinary team. A case study design is also appropriate for the current study as there is a focus on the context of the phenomenon, based on the characteristics of the veterinary practice in which the professionals work, but that the boundaries between the phenomenon and context are not clear. Interprofessional working cannot easily be manipulated; it occurs in a situation where the professions are working with paying clients and potentially unwell patients, therefore the situation does not lend itself to an experimental design, and case studies are again more appropriate. There are many data sources available in the context of the veterinary practice, all of which may provide complementary information, case studies allow these sources to be investigated and analysed together to strengthen the results' construct validity (Yin, 2009). Utilising a methodology which gives an indication of the phenomenon through the lens of multiple professions and occupations is also a clear link between case studies and this thesis. The study involves three sub research questions and while quantitative survey techniques are pertinent for the 'what' questions, the 'why' and 'how' questions are suitable for embedded case study research (explained below). It is suggested that triangulation of the methods used within this thesis will provide a more complete understanding of the phenomenon and will allow readers to compare their own practical experiences with those described, and hence will foster naturalistic generalisations to like situations. The results of the study will therefore be of interest and use outside of the specific cases involved.

### Interprofessional Case Studies in Literature

Concentrating on interprofessional working relationships (and not education), there are several published articles which report the use of case studies. However, a number do not fulfil the criteria of a case study according to the generally accepted definitions as identified above. As two examples, Temkin-Greener (1983)'s study into interprofessional perspectives on teamwork only uses one method (interviews) and Palmeri's (2004) study of interprofessional writing in a law firm addressed four research questions, all of which were 'what' questions. Examples matching the criteria do exist, such as Blue and Fitzgerald (2002)'s case studies of interprofessional working relationships between nurses and general practitioners in rural Australia; although even this published article splits the case study results, reporting only on the interviews and not the non-participant observations, for which you have to read Blue's PhD thesis. Gair and Hartery (2001)'s case studies of

multidisciplinary decision making in healthcare also fall into this category as the published report relies heavily on observations of team meetings and very little (or not explicitly) on the follow up interviews. Carmel (2006)'s case study on intensive care units is more clearly a case study and demonstrated through non-participant observation and informal and formal interviews that there are many similarities in the work of nurses and doctors on the ward, though noted that there were still areas of "distinctive (though not unique) contribution" for both of the professions (Carmel, 2006). Baxter and Brumfitt (2008) also undertook semi-structured interviews within the field of healthcare investigating such topics as conflict and problem-solving, professional roles and identity and beliefs about teamwork, along with non-participant observations which produced fieldnotes from "observations, conversations, feelings and interpretations". Analysis of the data occurred in an iterative process throughout the project. The results indicated professional differences in 'knowledge and skills', 'professional role and identity' and 'power and status' (Baxter & Brumfitt, 2008).

There is therefore some evidence of case study methodology (almost universally non-participant observation with interviews, and possibly documents) being used to investigate interprofessional relationships. The current study takes this traditional case study methodology and extends it to include a quantitative questionnaire which aims to identify patterns. These sequential steps within the current method both play a vital role and when the results are taken together, they provide a comprehensive study of veterinary IPW/L.

### Overarching Case Study Design

The flow of the overarching case study can be seen in Figure 2.

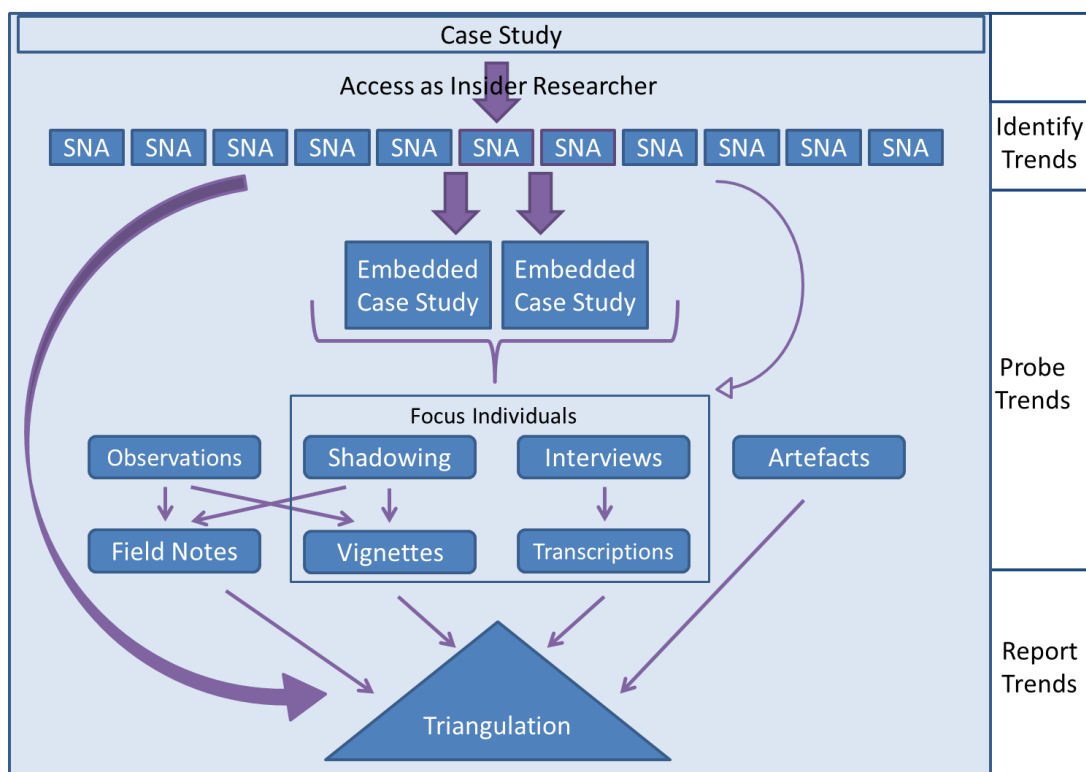


Figure 2. The Case Study Methodology (SNA = Social Network Analysis)

Within the following sections the methodologies within the case study will be introduced. This brief introduction is designed to give the reader an understanding of the complete methodologies used in this thesis before presenting the individual methods and results of the Social Network Analysis (SNA). The SNA is presented in depth and in isolation in Chapter Four, and will be revisited through triangulation in later chapters (Chapter Six, Seven and Eight).

## Social Network Analysis (SNA)

Social Network Analysis is a methodology to explore interactions within a prescribed network. It does not consider the individual, rather the interaction between any two individuals (a dyad), or more, and the resulting patterns within the whole network. In this thesis, SNA is used to map interprofessional interactions within veterinary practices, and to identify trends.

The primary part of the SNA involved a questionnaire based methodology. Eleven practices participated in this part as identified in Figure 2. The questionnaire

enabled members of each practice team to identify with whom they interact, and in which ways. Comparisons within and between practices allows, for example, trends in interactions between professions or between sub-teams within practices, to be identified.

In addition, an SNA framework was used to analyse observational data collected as part of the shadowing week of the embedded case studies (described in the following section). Two practices participated in this part of the SNA. Observations of a select number of individuals at the embedded practices sought to confirm the prevalence of interactions and therefore endorse the reliability of individuals' self-report via the questionnaires. Together, the two parts of the SNA provide information on the quantitative aspects of interprofessional interactions. More than this, the questionnaire SNA results assisted with the selection of practices and focus individuals for the subsequent SNA analysis of observational data and the further in-depth research through embedded case studies.

There are a growing number of studies utilising SNA to investigate interprofessional working or learning. These are explored in the following chapter.

## Embedded Case Studies

The overarching approach of this thesis is a case study as has been described above. The second stage of the methods can also be described as case studies of two individual practices. Multiple methods were used to investigate the interprofessional working phenomenon in-depth from different viewpoints within each practice. This second stage of the study is termed 'embedded case studies', as the two practices are embedded units within the larger study, being two of the practices from the SNA study (Figure 2). The results of the embedded case studies will provide content and context information on the interprofessional interactions. They provide the opportunity to probe the trends that were identified by the SNA research.

The duration of both embedded case studies was three weeks. This was split into a first week of general field observations to facilitate an appreciation of the overall culture of the practice and to focus on the team. The second week consisted of six days of shadowing selected focus individuals. These individuals were two veterinary

surgeons, two veterinary nurses and two administrators. Their selection is explained in embedded case study methodology chapter (Six). This second week allowed the SNA observation data to be collected and was an adjunct to week one's observations in terms of providing the opportunity to follow one person's lived experience in a typical day. The general observations and shadowing produced extensive field notes and subsequently vignettes, utilised to enhance the understanding of certain aspects of IPW/L. The final week consisted of interviews with the focus individuals to provide a reflection on IPW/L. Transcripts were produced and quotations are used in the later chapters of this thesis to illuminate the trends. Artefacts were also collected throughout the three weeks. This methodology is complementary, with each section providing additional resources and benefits as identified in Figure 2. This could be viewed as 'nested triangulation', as each part of the embedded case study methodology was triangulated within the practice, and the two practices were then triangulated with the SNA. The methodological choices within the embedded case studies are clarified further in Chapter Six.

Despite the publicised use of SNA and case studies for investigating IPW/L, the two designs remain largely separate. A notable exception is Currie and White's investigation into inter-professional barriers and knowledge brokering in a hospital (Currie & White, 2012) which is examined in Chapter Four. This article, which was published the year after the submission of my PhD proposal, says that a novel feature of their research design is the combination of SNA and fieldwork. Since this time there have been few other studies that have heeded the authors' advice to build mixed methods into research. Bosch-Sijtsema and Henriksson (2014) describe a comparative case study analysis to investigate distributed and embedded knowledge through interactions. The case studies consisted of observations of meetings and interviews. Through the observations a social network matrix and sociograms were produced to highlight the central role of the project leader. The use of SNA is however limited to diagrams and is not mentioned in the abstract or introductory aims. Further the observations total just one and a half to six hours in each site, which does not compare to the full immersion of a typical case study. Barnett et al (2015) claim to undertake a case study using network analysis. Their use of qualitative data however centres on observing interactions within interprofessional education interventions as opposed to real life and the study only included 19 individuals from seven professions, making any clear indication of specific IPW/L difficult. This thesis is therefore unique, in bringing the two

methodologies together within a comparably large scale study in the real world and utilising a convergence of complementary results through triangulation.

## A Note on Mixed Methods

This thesis uses mixed methods, as traditionally defined as an integration of both quantitative and qualitative data. Within this thesis I believe that mixed methods can be used in order to achieve the commonly quoted benefits of increasing confidence in the research findings, addressing weakness in one method through the use of another, considering multiple views of a phenomenon, producing a fuller picture with deeper understanding and thinking outside the box (Mason, 2006; Moran-Ellis et al., 2006; Stoller et al., 2009). In addition, the methods chosen can facilitate crossing micro/macro boundaries (Mason, 2006) of lived experiences, professionalisation of groups and evolution of the veterinary business model for example.

The thesis begins with SNA, which will consist of two forms, a quantitative questionnaire and qualitative observation, these methods will be used to corroborate (Brannen, 2005) some of the same results, but the questionnaire will also assist with development, in terms of sampling (Bryman, 2006) of the observations, and in turn the observations will elaborate (Brannen, 2005) on the questionnaire. The two embedded case studies will be used as an expansion (Bryman, 2006) on the SNA and cases will be guided by the SNA results. Finally, the outcome of producing recommendations for practices and for interprofessional education will be achieved through consideration of the conclusions of the SNA and embedded case study results.

Within the analytical chapters, all methods will be taken together through triangulation according to Gorard and Taylor (2004)'s complementary notion. It is important to remember that the overall approach is a case study which brings together different complementary methods as one. Therefore the unique nature of the results from each method is appreciated rather than lost through the process of triangulation.

The empirical research will therefore address the overall research question, 'what is the nature of veterinary interprofessional working and learning in the UK?' The thesis will conclude by considering the implications for interprofessional education in

universities and developments for practices, based on the findings from the overarching research question.

## Ethics

Ethics approval for this project was gained from the Ethics and Welfare Committees at the Institute of Education and the Royal Veterinary College (RVC) (RVC reference number URN 2013 0086H).

British Sociological Association (BSA) guidelines were adopted. The Association appreciates the diversity and potential for conflicting requirements within sociological study and therefore does not set hard and fast rules, but describes the researcher's duty to make choices based on the well-being and interests of the participants. Trust and integrity between researcher and participants is fundamental to studies which follow the BSA guidelines.

There were potential ethical issues that could have arisen within this study. For example, individuals may have felt pressured to take part due to my status or the status of the gatekeepers I used to access the participating veterinary practices. In addition, 'focus individuals' were shadowed as part of the embedded case study research, and were therefore identifiable within their practice, countering the typical anonymity offered to participants in research. Therefore, in all cases of empirical work in this thesis, practices/individual participants were provided with information sheets, were required to read consent paragraphs (SNA), or sign consent forms (case study focus individuals) and were informed of their right to opt out or withdraw. Further discussions of potential issues and methods of addressing these issues are provided where appropriate throughout the thesis.



## **Chapter Four: Mapping Interprofessional Interactions** **via Social Network Analysis**

### **Introduction**

The first two chapters portrayed the context of modern day veterinary IPW/L. They described how the veterinary profession created itself, and then helped to create what was a subordinate occupation, the veterinary nurse, to assist them. The recent changes regarding nurses in terms of Registration and the Royal Charter provide the possibility that the traditional hierarchical relationship seen within veterinary practices may be about to change. Added to the focus of veterinary surgeons and veterinary nurses are the occupations which have arisen in recent years, such as practice managers and receptionists. As new groups join the veterinary team, so the role of the veterinary surgeon and veterinary nurse are altering. Added to the well documented change in public demand for veterinary services (from a dominance of farm animals to pets), the combination of these groups paints a very different picture to the lone James Herriot style veterinary surgeon travelling the countryside treating cows.

It is not yet clear however, what IPW/L actually looks like within modern day practice teams. In consideration of education, Scholz et al (2013, P360) in their sociocultural perspective on workplace learning in veterinary education concluded:

There is a clear need to develop and explore models of workplace learning and teaching for the unique context of veterinary education.

The authors discussed veterinary practice as a social practice and described the importance of context and the relationships between individuals and with the environment in time (Scholz et al., 2013).

With the professionalisation of veterinary nurses 'completed' in 2015, with just the protection of the title left in the balance, 2012-2015 has been the perfect time to look at how team working has started to evolve. This chapter provides an overview of interprofessional interactions in veterinary practices in the UK. It describes the first part of the overarching case study methodology, social network analysis (SNA). The term 'interaction' may be misleading. It could relate to saying hello, assisting someone by passing them equipment, or problem solving behaviours. The term is used because of its convention within SNA. Its meaning within this thesis relates to five different elements which will become clearer throughout the chapter. SNA

allows interactions to be examined in terms of how resources flow through the network. It does not enable the results of this flow to be identified however; a methodological challenge which is addressed through embedded case studies.

The SNA took two forms. Firstly a survey of the professions and occupations was used to map and quantify veterinary team interactions. The survey results also informed the selection of practices for the second form, observational SNA. This aspect is used to corroborate the self-reported survey data. Together the SNA methods provide a bird's eye view of the interactions within a veterinary practice setting. The results also informed the next stage of the study; embedded case studies which explored the quantitative results in more depth (Chapters Six to Eight).

The following section will introduce the method of SNA in some detail as it is relatively unknown in the veterinary and education literature. The remainder of the chapter will describe the outcomes and implications.

## **Social Network Analysis (SNA)**

### **Background**

SNA is not a terribly well-known analysis and related methodology, and though articles and books on the topic can be found, they are rare in comparison to typical analysis related to questionnaires, observations or interviews. Wasserman and Faust's (1994) book is generally regarded as a definitive guide and is used to inform the methods in this thesis and to assist with describing the analysis. They explain the underlying principles of SNA as follows:

Social network analysis provides a precise way to define important social concepts, a theoretical alternative to the assumption of independent social actors, and a framework for testing theories about structured social relationships (Wasserman & Faust, 1994, p17).

### **Focus on Relationships**

As can be seen, the fundamental aspect is a focus on relationships between individuals within a society or network. This level of analysis makes SNA ideal for use within this thesis. This view of a network arose almost independently amongst

sociology and behavioural science disciplines in the second half of the 1900s, in order to gain an understanding of observed data and to address theoretical problems (Wasserman & Faust, 1994). Wasserman and Faust (1994) claim theorists are quick to pose theories, but traditional quantitative SNA provides patterns, structures and formal statements which enable the logical consideration of empirical data and the formulation of testable models. Unusually for a methodology, the analysis can occur at multiple levels from an individual to a pair, to the whole societal group. Thereby SNA research can target relations from trade amongst nations down to school children's classroom friendships (Wasserman & Faust, 1994). SNA was chosen for the current thesis due to this focus on the relations between individuals and its ability to produce a bird's eye view, or map, of these relations through mathematical calculations and visual aids. Sociograms (diagrams depicting interactions) are especially useful for visualising the flow of resources through a network.

### Depicting Connections

As Wasserman and Faust (1994) describe, each individual participant (or group) in the network is an actor and is termed a 'node' when represented in sociograms. Nodes are depicted by a dot or a small shape if differences in the attributes are important; for example belonging to different professions. Each node is connected to other nodes, or not, according to their interactions. The interactions are usually investigated through questionnaires whereby individuals are asked to identify through a roster (list of names provided) or free recall (no list of names provided) the recipient of their interaction. The connections are shown by lines and can represent any social interaction, for example friendship, receiving information or status as employer/employee. Interactions are often considered between two nodes which are known as a dyad. If the connection between the dyad had an orientation, i.e. are directed then the connecting lines, also known as arcs, can be isomorphic null (non-existing), isomorphic asymmetric (in only one direction) or isometric mutual (in both directions; reciprocated). It is possible to apply mathematical rules to calculate, for example, the degree of a node (how many lines come in/out of one node), density of the graph (how many lines are there in comparison to how many there could be) or geodesic distances (the shortest path via lines between a chosen dyad) (Wasserman & Faust, 1994). This information allows researchers to perceive how, for example, knowledge is shared and flows within a social system, if there are 'gatekeepers' of knowledge, or if there are individuals removed from a central group.

## Mixed Methods SNA

This is the quantitative questionnaire aspect of SNA and is traditionally dominant over other (qualitative) forms (Edwards, 2010). Observational methods can be used to research specific interactions; they can be quantitative and investigate similar questions to questionnaires, for example by measuring the time of interactions. These results can corroborate the questionnaire results, or contradict them, and as such can be used to explore the presence of self-awareness of relations. Observations can also be used more qualitatively to examine the interactions in more depth, therefore elaborating on the quantitative results. For example descriptions of the interaction in terms of power relations, location and purpose can be made. Edwards (2010) has written a review paper on mixed-method approaches to SNA and describes how SNA lends itself to a mixed methodology due to its original interdisciplinary nature (between quantitative mathematics and qualitative ethnographies) and how using quantitative mapping techniques provides an “outsider’s” view, while qualitative interviews or observations provides an “insider’s view”, which are in essence views of the same thing, and when taken together give a more complete understanding by allowing one to help understand the other. Edwards further describes the value of mixed methods in SNA as the ability for one method to inform the other, to provide cross-reference checking and to produce a representation of the true disorganised nature of life experiences. While the quantitative side brings patterns and structure, the qualitative side brings content and context (Edwards, 2010). This thesis uses quantitative questionnaire and observational SNA to allow cross-reference checking. Case studies informed by the SNA follow and are analysed through triangulation to provide the in-depth content and context.

## Social Network Analysis in the Literature

My attention was brought to the potential of SNA in my area of interest, the context of interprofessional relationships and the implications for interprofessional education, through a presentation by Lim et al. (2011) at the Association of Medical Education in Europe (AMEE) conference, 2011. The authors sought to answer questions relating to the nature and structure of relationships between doctors and nurses and to investigate how they communicate. Their analysis made use of static

and dynamic sociograms which displayed the interactions so clearly over time that it inspired me to use the technique in my own field to answer similar research questions that I wanted to address. There is a growing trend for studies regarding resource flow within healthcare to have undertaken SNA. The method is however traditionally used more frequently with regard to the transfer of disease (e.g. Rushmore et al. (2013)'s study of predicting infectious disease risk using chimpanzees), behaviour in online networks (Aşkar, 2011) and friendships (e.g. Lopes et al. (2013)'s consideration of the best friend influence on physical activity).

### Using SNA to Consider Outcomes

Within healthcare, SNA has also been used to consider outcomes of initiatives. Fattore et al. (2009) researched the consequences on prescribing behaviour of encouraging networks for GPs. The authors used affiliation matrices whereby individuals are linked by events they attend rather than self-reported questionnaire data. This method has limitations in that it assumes two individuals at an event will have a tie, therefore overestimating some ties, while underestimating the possibility of informal ties which are missed. The authors' conclusions focus on the perspectives described by Borgatti et al. (2013) of social capital and social influence. The social capital perspective states that a network is a resource; therefore those in the centre will have more access to resources and will be at an advantage to those on the periphery. The social influence perspective suggests that a network is a way of controlling others' behaviour and as a result, you act in similar ways to those around you through means of social power. The conclusions of the study are that those central within the new networks were no better than those on the periphery (disproving a perspective of social capital in this case), but that there were similar behaviours between linked individuals (confirming the social influence perspective). These two social perspectives are useful for considering egocentric SNA networks when outcomes are the focus of study.

### Using SNA to Consider Transfer of Resources

Extending the concept of using SNA with outcomes, studies have considered how to use knowledge of the network to increase the uptake and dissemination of methods or ideas. Anderson (2002) identified key physicians for resources flow. These individuals attended meetings with the project team regarding a new information technology system and then continued with their work. Results indicated that after the initiative more people used the new system, including members of other

professions. West et al (1999) assessed the ego networks of directors of medicine and directors of nursing. They identified that directors of nursing have lower density networks whereby their alters (the individuals with whom they interact) do not know each other. Directors of medicine have denser networks which imply the ability for change to spread quickly once a critical mass is reached. It also creates a greater ability to resist change from outside. The authors state:

We need to know much more about how to get information into medical communities and about ways to influence them to change without provoking resistance (West et al., 1999 p644).

They suggest that with their less dense networks, directors of nursing access more novel information and opinions and hold a central position between unlinked individuals where they can mediate information. Directors of nursing therefore make good targets for dissemination of information.

### Are Dense Networks or Less Dense Networks 'Better'?

There is an argument of whether dense networks or less dense networks are 'better'. The conclusion appears to be that it depends on the type of interaction and the required goals (Adler & Kwon, 2002). Common sense would suggest that in dense networks, more information flows and the network can perform better. However, this theory does not take into account the cost of interactions (maintaining relationships) or the existence of redundant ties. Grannovetter (1973) wrote the article 'The strength of weak ties' which has been highly influential in the study of this question. As he explains, if individual A has strong ties to individual B and individual C, it is likely that individuals B and C will also be connected by strong, or at least weak, ties. Information then flows in any direction in these linked groups. This is known as transitivity. Weak ties on the other hand between A and B ( $A \rightarrow B$ ) and  $A \rightarrow C$  do not necessarily imply a link between B and C. Hence, if the  $A \rightarrow B$  link is removed, information cannot flow between B and C. Weak ties often exist between different types of groups, which may have different knowledge or experiences, and therefore joining two diverse groups through weak ties enables flow of knowledge and limits encapsulated cliques (Grannovetter, 1973). Removing weak ties can therefore have a greater influence than removing strong ties. Further to Grannovetter's strength of weak ties is Burt's concept of structural holes (Burt, 1992). This concept brings the focus back to the causal agent which is the hole, or lack of interactions around actors. It ignores the strength of the ties, noting that any

bridging tie between two groups, whether it is strong or weak, will provide a competitive advantage to the dyad in which it is located.

Different networks therefore have different benefits and drawbacks. Cohesive networks are good for creating a bonded group who work cooperatively together, in a culture of complying with social norms and rules and high levels of trust. A sparse network where bridging occurs between cliques allows for information flow, a lack of non-redundant ties and suits tasks which are certain and where individual contribution and autonomy is valued (Adler & Kwon, 2002).

### Exemplars of Researching Healthcare Interprofessional Working

Although some of this research, especially West et al. (1999) considers interactions of different groups; doctors and nurses, there is limited focus on interactions which span groups or professions. Tasselli's (2014) review of social networks of professionals in healthcare organisations reports just 85 articles from 1986-2013 which fit the review criteria, however on consideration of the key findings, the majority of these relate to intraprofessional behaviour, knowledge transfer and diffusion of innovations as opposed to interprofessional interactions. In the present study, team based interprofessional interactions are the main focus of study. SNA is also unused within the veterinary field and therefore this study is novel in its design to consider the behaviour of professions involved in modern day veterinary work. The results of this thesis add to the SNA literature by providing another context and to the veterinary literature by investigating an underexplored phenomenon through unused methods. The development of my own SNA methods, as described later in this chapter, has been guided by Wasserman and Faust (1994) as well as seminal papers which have researched interprofessional working in healthcare. Below is a brief description of the papers that have been most influential to me, presented chronologically.

Cott (1997) used traditional SNA via self-administered questionnaires with multidisciplinary long-term care teams. Her aim was to investigate patterns of informal interactions as opposed to formal organisation. She concentrated on three wards within a care facility that had a total of 16 professions/occupations. First, using blockmodelling, which included factor analysis, individuals with similar relations to others were grouped; this represented their social roles. Five groups/blocks were identified in each care team, summarised as: high status nurses, day nurses, evening nurses, night nurses and non-nursing professions. The

blocks were compared for the following informal interaction identifiers: who they know, who they chat with, who they share information with (give and receive), who they problem solve with, who helps them with their work, and who they have lunch with (within the last two weeks). Results indicated that there is a sub-team consisting of multiple non-nursing professions, who work together in higher order tasks such as problem solving and are linked to the high status nurses, as well as a hierarchically structured nursing sub-team who work together in more physical ways such as bathing patients, and are also linked to the higher status nurses. Cott (1997) concludes on the basis of these sub-teams that complete collaborative teamwork is not fulfilled in this setting. Evidently the methodology was purely quantitative and an inclusion of qualitative research might have added depth to these data regarding the sub-teams' lived experiences.

Creswick and Westbrook (2010) carried out a questionnaire based SNA to systematically identify the frequency of interaction in a hospital of one particular aspect of communication, advice-seeking. The ward had four professions: medicine, nursing, allied health and administration. A sociogram was produced and statistical analyses were performed including geodesic distances, densities, frequency of inter- and intra-professional interactions and reciprocity (are the relations reciprocated?). Individual measures focussed on gatekeepers, people with high in-degrees (relations towards them) and who were often included in the geodesic distances between two other people. The ward was quite cohesive with a low average geodesic distance, meaning that information can flow quickly; however in total the frequency of advice seeking was very low, less than a couple of times a year. When doctors did seek advice, they tended to ask other doctors, while allied health and nurses equally sought advice intraprofessionally and from doctors. A low reciprocation value was identified, suggesting a hierarchical structure. It was clear that there were five people who were key providers of advice: a pharmacist, three senior nurses and a junior doctor. Three of these were also in the most geodesic distances, i.e. shortest potential paths of advice sharing, and were therefore considered powerful individuals. The authors suggest more in-depth methods such as interviews could be used to find out why these individuals are the most sought after (Creswick & Westbrook, 2010).

Wagter et al. (2012) concentrated on informal interprofessional learning within a complex care workplace, aiming to visualise the patterns of who the learning takes place between by using an online survey. Three groups were involved in this study:



senior doctors, nurses and residents. The questions in the survey reflected recognised indicators of informal learning, summarised as: 1) Who do you seek advice or help from? 2) Who influences changes in your working? 3) Whose work related skills do you observe and use in your own work? 4) With whom do you share thoughts and ideas? Mokkan scale analysis demonstrated this was a cumulative scale, getting more 'difficult' as you progress, i.e. if you share your thoughts with another, you are likely to also do the lower stages. The sum of the four questions provides the level of informal learning in a dyad, creating a scale of informal learning relations. Results were skewed towards nurses (n, response rate; 61, 75%) due to the lack of senior doctors (7, 100%) and residents (9, 100%). Density figures and tie strengths show senior doctors largely only have informal learning relations with other senior doctors, mirroring the results of Creswick and Westbrook (2010). Nurses and residents also have more ties with senior doctors, though residents do have some intraprofessional ties. Reciprocity calculations suggest if a senior doctor seeks advice or is influenced in their work by a resident, this will be reciprocated, but the reverse is not necessarily true. For the higher order questions, observations and sharing thoughts, there are few reciprocations. Sociograms of sub-networks showed that there is a split in two, representing the medium care unit nurses in one group and the rest in another. These patterns are suggested to have formed due to opportunity structure (e.g. functional and spatial proximity) and homophily (similar individuals choose to associate with one another – which is counterproductive to interprofessional relations). The authors used a limited amount of qualitative data; a description of the medium care unit's location, to interpret the quantitative data; they suggest that case studies would be beneficial to expand upon these results (Wagter et al., 2012).

All three of these studies therefore indicate that within hospital and healthcare settings, there is a lack of reciprocated interprofessional communication, specifically doctors hold relations with other doctors and produce a hierarchical rather than a horizontal structure of resource exchange. Two of the papers' authors suggest that further qualitative exploratory methods would be a useful adjunct to this solely, or primarily, quantitative method in order to produce a fuller understanding of the communication involved in the interactions.

One paper, published just after this PhD began, is novel in its methodological framework of SNA followed by semi-structured interviews and observations (Currie & White, 2012). The SNA aspect of the study focussed on knowledge brokering and

brokerage roles of individuals (such as liaison, gatekeeper or coordinator). This was achieved through Likert scale questions regarding the frequency and quality of managerial, clinical and psychosocial knowledge. The site of the study was a specific hospital ward. Semi-structured interviews took place with 61 individuals from many professions. Observations were of team meetings, clinics and ward rounds. The results demonstrated that clinical knowledge is hierarchical and that specific individuals have high centrality/brokering scores, including specific non-clinical individuals who were important for transferring knowledge across professional boundaries. This thesis also uses the unusual mixed method of SNA and empirical fieldwork to explore interprofessional working in the veterinary field.

As mentioned above, Wasserman and Faust (1994)'s book and these articles have guided the design of my SNA methodology. The first stage of the SNA was a quantitative SNA questionnaire. This approach allowed multiple practices to be investigated. Through the results of the quantitative SNA, practices suitable for the observational SNA were identified. Unifying the results of the two SNA methodologies increases the construct validity and highlights the professions' awareness of IPW/L. The results also directed the choice of locations for the embedded case studies and the selection of focus individuals (Chapters Six to Eight).

## **SNA Questionnaire Methods**

The following sections describe how the questionnaire was designed, piloted, and how practices were approached. The results follow.

### **Designing the Questionnaire**

The questionnaire consisted of an introduction, a description of how to answer the questions, the table of SNA interaction questions and personal information questions. The full questionnaire can be seen in Appendix 2. The introduction described the research project, in general terms, avoiding emphasising interprofessional relations, and instead concentrating on team interactions. In this way it was anticipated that the participants would not be influenced and change their answers to better depict their working relationships with other professions. Consent was gained via a paragraph in the introduction which explained the anonymity of

results, storage of data and the right to withdraw, as shown below (the full questionnaire is seen in Appendix 2):

Please note that your data will be stored securely and will be used only for the stated research purposes. All responses will be made anonymous. By completing this questionnaire you are agreeing for your responses to be used anonymously in any future reports and publications. You may withdraw from the study at any time, to do so, please contact tkinnison@rvc.ac.uk.

The notion of individual anonymity was important to ensure honest completion of the questionnaire. The respondents knew that a report would be given to their bosses, but that it would use codes instead of names. Each practice was also assigned a code. While the results did not indicate poor working in any of the practices studied, it was considered appropriate to avoid the possibility of potential or current clients from being able to identify a practice through this research.

### Questionnaire Format - Nominalist Sociocentric Roster

Participants were asked to identify their relationship with all other members of their practice team. The type of SNA used was a nominalist sociocentric roster format. Nominalist SNA utilises researcher defined boundaries. I asked the representative of the practice to provide the names for both a core and extended team (revisited later), and imposed strict guidelines on who could and could not be included, based on the conceptual framework of 'the day-to-day running of a veterinary practice'. This is in contrast to a realist strategy whereby the boundaries are chosen by the participants themselves (Heath, Fuller, & Johnston, 2009). A sociocentric network is the whole network, and is compared to egocentric networks, which are personal networks (Cross & Parker, 2004). A whole network was chosen because interesting individuals to approach would not have been known prior to the study. Also the study made use of professional comparisons rather than solely individual comparisons. The roster format allows the list of all potential alters to be identified. This is designed in part to remove the risk of individuals being forgotten through free recall. Unfortunately on a number of occasions individuals were missing from the list of names. This unfortunate occurrence was usually remedied (as explained below) and it can be hypothesised that the point of contact would not have missed a vital team member.

In addition to the list of individuals employed by the practice, participants were able to add external individuals who they work with regularly as part of an 'extended

team'. These extended team members were contacted regarding participation as described below.

Free recall also tends to utilise a fixed choice, whereby participants are limited in their choice of recipients of each interaction to a set number, often between three and 10. This imposes unrealistic limitations and tends to involve only the inclusion of strong, rather than weak, ties. Free choice, being able to choose as many recipients as you like, does not limit answers. Limiting research to strong ties can be detrimental when acknowledging the importance of weak ties as explained earlier in this chapter (Grannovetter, 1973).

### The Five Interaction Types

I will now detail the type of resource flow measured. Participants were asked to consider five interaction types. These interactions were adapted from three of the influential papers described earlier in this chapter; Cott (1997), Wagter et al. (2012) and Creswick and Westbrook (2010). The five interactions and their sources can be seen in Table 1.

Table 1. Development of the five interactions investigated in the survey SNA

The Five Interactions		Sources		
		Cott, 1997	Wagter et al., 2012	Creswick and Westbrook, 2010
1	Who of the following do you receive work related information from?	Giving and receiving information		
2	When you feel unsure about something during your work in the practice, who of the following do you ask for advice, help, explanation?		When you experience a lack of knowledge or skills during your work on the ward, whom of the following persons do you ask for advice, help or explanation?	How often do you seek advice from [each person] about medication decisions and tasks?
3	Who of the following significantly influences your working habits, for example through observation of their work?		Looking back at the past 6 months, what persons made such a contribution or had such an influence on you that you decided to change a working habit/routine?	
4	Who do you talk to about your work activities to develop new ideas or ways to solve problems?	Problem solving	With whom do you share thoughts about your activities and develop new ideas for your work?	
5	Who of the following do you meet socially outside work (not including work functions such as Christmas lunch)?	Having lunch or coffee together		

The choice of interactions was reinforced by suggestions within the Appendix of Cross and Parker (2004)'s 'The Hidden Power of Social Networks', which suggests that questionnaires should include a combination of interactions comprising communication and information (indicators about collaboration) and problem solving and innovation (selective indicators including aspects of trust).

The five questions highlight the view in this thesis that working and learning are closely linked. Further, that learning follows from working together. This is especially apparent in interactions 2, 3 and 4.

Before undertaking the study, the five questions were shared with members of the Lifelong Independent Veterinary Education (LIVE) Centre where I was based. Feedback was provided on the comprehensibility of the questions. Improvements were made, including specifying the type of social interactions.

Finally the questionnaire asked for personal details. For members of the core team these consisted of: gender, age, qualifications, years of clinical experience (veterinary surgeons and veterinary nurses), years of work in current occupation (other occupations), years in current practice and full/part time. For the extended team the years of clinical experience was removed and years in current practice was edited to years working with the named practice. These personal details are important for interpreting the interactions as accurately as possible.

## Pilot

The SNA questionnaire was piloted with an easily accessible and typical (in terms of size and composition) veterinary practice. The practice treated small animals within three branches. The pilot highlighted the lengthy procedure of attempting to contact a practice partner by telephone (as described further below). After successfully discussing the project and collecting the list of team member names, I was passed to a veterinary nurse as point of contact. I was invited to spend the morning in the lead practice and speak to the staff working that day. This provided me with nine completed SNA forms. The remaining forms were left with the representative who collected responses from the other branches. I returned to collect these and thank the team. Amendments were made to the instructions based on this experience. These included:

- Highlighting the importance of reading the extended versions of the interactions before beginning to complete the questionnaire
- Specifying the inclusion of veterinary nurse students, not 'employed', but permanently attending the practice
- Specifying the requirement of a named individual for a company (e.g. drug company) within the extended team section
- Clarifying the acceptability of answering 'yes' for all individuals for any one interaction, similar to attempts to avoid central tendency bias
- Clarifying the acceptability of answering 'no' for any one individual for all interactions

Upon completion of the pilot and amendments to SNA forms, contacting test practices began.

## Potential Participants

Veterinary teams within clinical practices were the focus of the study. Different types and locations of veterinary practices were targeted. Although this research did not seek the improbable task of being representative of all practices in England (or globally), by covering the major types, a more complete picture of the range of interactions is produced. The primary identifying criteria of practices was whether they were individual specialists (for example small animal practice) or mixed practices (any combination of small, farm and equine). Secondary characteristics of the practices were also identified. For specialist practices these were:

- Range of sizes from small (~15), medium (~25), to large (>40)
- First opinion and referral
- Regional hub of a large company (separate practices belonging to the same franchise and within close proximity to each other)
- Independent practice on a single-site
- Independent practice with multiple branches (typically one main branch with satellite branches)

For mixed practices, they were:

- Regional hub of a large company
- Independent practice with multiple branches

These types were chosen through discussions with my supervisor, Professor Stephen May, a veterinary surgeon and Deputy Principal of the Royal Veterinary College. The types portray the historical evolution of practices. From the original single site small practice run by one veterinary surgeon, the sole principal, who was autonomous and unsalaried (worked for himself), with his small team of veterinary nurses whom he trained. To the modern day rise of chains, franchises and limited companies (Robertson-Smith et al., 2010), employing greater numbers of people and with an increasing focus on business, leading to the rise of veterinary surgeons who are autonomous salaried or even heteronomous salaried, which means

working for a company not headed by a member of your own profession (Abbott, 1988). Other important characteristics included the location, in terms of urban/semi-urban and rural areas which spanned England. Veterinary practices, the occupations involved in veterinary care and veterinary education vary significantly across the globe. To research areas outside England would have been beyond the scope of the current research and would have added several more challenges in performing the research and interpreting the results.

Practices were identified through internet searches (RCVS, Google and Google maps) and via discussions with veterinary colleagues and family members. Of those practices which fitted several of the inclusion criteria types, their geographic location determined whether or not they would be approached to take part in the study; if I had already studied a practice in their location, they were not contacted. The aim was that together the practises would span England and cover the range of types identified above.

## Approaching the Chosen Practices

Practices were first approached by telephone. The knowledge gained from the pilot that speaking to a decision maker is a prolonged task, led me to contact several practices at once. I anticipated that I would be able to speak to the practice manager, a partner or the head veterinary nurse, and that this individual would become the representative or point of contact. This occurred on a few occasions. A short description of the study was given and they were asked if they would consider being involved. Immediately after the call, a general project information sheet and a specific SNA information sheet were sent to the representative to allow them to be fully informed when considering participation. An example of these sheets can be seen in Appendix 3. Regarding ethics of research, the general sheet once again highlights the voluntary nature of the study and the option to opt out. In the majority of cases the individual I had identified to contact was unavailable. Often the receptionist I was speaking to would request that I email details of my study to the practice. Emails with information sheet attachments became the means by which I made contact with many practices. After several unsuccessful calls, I decided to simply email the practice directly. However, by speaking to a receptionist I was able



to gain specific information such as who would be the most appropriate person to contact, and therefore I reverted back to telephoning first.

After successfully engaging in conversation with a representative, the decision regarding participation was made. Occasionally the practice representative made the decision themselves. The decision was also postponed to a managerial meeting, or was made through general discussions with owners (partners/directors). Follow up calls were made and emails sent, based on my feeling with regard to the likelihood of participation. I made several and more frequent (weekly) follow up attempts with individuals who seemed interested in the study, but fewer with those who did not indicate any real interest. For the practices that participated, the period from initial contact to the day of distributing the questionnaires varied, but tended to be significant, ranging from three weeks to almost four months.

### Practice Uptake

In total, 43 practices were approached. Despite follow up contact, I did not receive any decision from 19 practices. This included instances where I could not speak to a decision maker and also where after lengthy discussions, no final decision was given. I received negative responses from 11 practices. When asked for their reasons, the answer was universally linked to a lack of time. Several of these practices indicated their interest in the study, but maintained that their staff did not have time. This was especially true of referral practices and larger practices. Thirteen practices said that they would take part; however one was after the deadline and could not be included. In most instances where a favourable response was given, the choice was anecdotally based on a desire to help a PhD student, a particular interest in psychology and teamwork and in one case through knowing a member of my family. I believe that belonging to the Royal Veterinary College and my links with my supervisor also induced the practices to see me and my project as a worthwhile use of their time. The only incentive offered was that I would share their results with them. To ensure anonymity, it was decided that an overview of the results would be provided, which would indicate areas where interactions were working well and less well, but without identifying individuals. One of the practices with which I had most contact prior to the visit was concerned about providing me with their staff members' names, and were notably interested in the possible gains that they would receive through my research. I was able to assure the representative of the confidentiality and consent aspects of my research and explain

what the group might hope to learn from the results. An example of a summary report, which was sent to each practice, can be found in Appendix 4.

## Extended Team

To create the questionnaire it was necessary to gain a list of all staff members at the practice, and any external individuals considered part of an 'extended team'. A table was emailed to the representative once the practice had agreed to take part to collect the list. It asked for 'core team' names and positions as well as extended team names, jobs and contact details. Details were given of potential jobs that could be included, for example animal behaviourists and farriers. It was made clear that non-animal related jobs, such as doctors, should not be included, even if they do interact with the veterinary practice for other purposes, such as zoonotic diseases. Professions such as finance managers should be included if they are in-house, but otherwise should not. Once this information was returned it was added to the practice's questionnaire. The questionnaires were printed and each participant's name handwritten at the top. Figure 3 shows a fictitious SNA table.

Working and Learning in Veterinary Teams - Questionnaire

Name: \_\_\_\_\_

**Team Interactions**

Please make sure you have read the full questions on the previous page before completing this table

Network Questions					
I receive information about work from ...	I ask... for advice, help	... influences a change on my working habits	I develop new ideas and problem solve with ...	I meet with... socially	
<b>Core Team Members</b>					
Rose Adams Veterinary Surgeon					
Kevin Clarke Veterinary Surgeon					
Mel Davies Receptionist					
Sammy Evans Head Veterinary Nurse					
Paula Green Receptionist					
Fred Jackson Veterinary Surgeon, Owner					
Molly King Veterinary Nurse					
Charlie Smith Veterinary Nurse					
<b>Extended Team Members</b>					
Susan Phillips ACPAT Physiotherapist					
Mark Turner Animal Behaviourist					

Figure 3. A fictitious example of a SNA table within the SNA questionnaire

I decided to visit each practice to distribute the questionnaires to as many of the team as possible. This step was taken to engage the representative and team with

the project and to offer my personal thanks. This meant that the questionnaire had to be paper based. Given that practices have few computers for internet use, a paper based questionnaire which could be started and returned to at a later time was preferred. Once the questionnaire had been compiled a meeting was arranged. After the visit, the representative became a champion for the project, ensuring the questionnaires' completion by the team. A few days after the visit, I emailed the representative to thank them and to provide an electronic questionnaire for anyone who had lost their named version. Further details of the meetings are given in 'Outcomes and Implications: Details of the Practice Meetings'.

Extended team members were contacted after the visit, using the details provided by the practice, and asked to complete a similar SNA survey. This extra step aimed to enable the investigation of reciprocated interactions between members of the core and extended team.

## Analysis


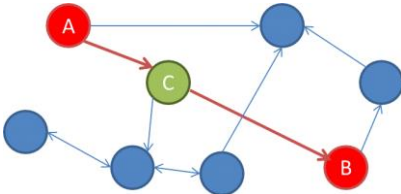
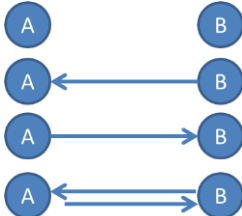
### Sociograms

A common starting point for analysis, as identified earlier in this chapter, is to create sociograms. Sociograms provide a visual map of the data and can be used to identify suitable statistical tests. For each practice sociograms were created for the four main interactions: information, advice, problem solving and influence. Attributes of profession and location were identified in the diagrams. All 44 sociograms are not depicted here. In the Outcomes and Implications section, the sociograms from one practice, typical of the others, are displayed.

### Statistical Analysis

Statistical analysis was carried out using Ucinet 6 (Borgatti, Everett, & Freeman, 2001). Statistical analysis can target the whole network or an individual. To analyse the networks' interactions, five types of analysis (whole network measures) were used: density, group density, average degree, maximum geodesic and reciprocity. Two individual measures were used: outdegree and betweenness centrality. A description of these measures can be found in Table 2.

Table 2. A description of the SNA analysis techniques used

Analysis	Description	
Density	The number of ties or connections divided by the total possible number of ties. This is affected by network size as large networks cannot feasibly have density scores of 1, whereas very small networks can	
Group Density	Density according to interactions between groups such as professions	
Outdegree	The number of times information (or any resource) travels from one person to another. In the diagram, person A has said that they ask person B for information – therefore information travels from B→A, and person B has an outdegree score of one.	
Average Degree	The average outdegree score across a whole network. Average degree is less influenced by network size and can therefore be compared across networks	
Maximum Geodesic	A geodesic is the shortest path between any dyad (two nodes). The maximum geodesic within a network is the longest shortest path that exists. It indicates how easy it is to reach another individual. Values range from 1 (direct contact with the other member of the dyad) upwards.	
Betweenness Centrality	Take any dyad within a network (e.g. individuals A and B in the diagram) and consider anyone who is on the geodesic between them (i.e. individual C). Betweenness centrality is the proportion of times an individual appears in the network's geodesics. Networks can be ranked with these central people, who can act as gatekeepers of knowledge, at the top and peripheral individuals lower down.	
Reciprocity	Any two individuals can have no interaction, a one way interaction from A→B or B→A, or a reciprocated interaction A↔B. Profession reciprocity scores show the density of interactions from profession A→B which are reciprocated (from B→A).	

## Missing Data

Due to SNA's consideration of interactions, missing data has been assumed to have more significant effects than in typical social science research. Within a network, it is possible that the most influential and active people fail to participate due to the very busyness that makes them important. In addition, isolated periphery individuals may fail to participate, removing details of the team's breadth and altering the assessment of resource flow. There is increasing research into this hugely complex area of SNA missing data. Missing data can involve missing nodes (people who have declined to complete the questionnaire) and missing edges (where questionnaire responses are incomplete). There are several options for dealing with missing data, none of which appear to provide a universal benefit. This is because the options depend on the type of network data (e.g. how clustered it is), how much missing data there is and what statistics are being used. The following options relate to directed interactions, whereby you cannot simply assume reciprocity. One option is to remove the missing node; if respondent code 23 fails to return a questionnaire, then they are taken out of all analysis. This is largely considered to be inappropriate because it leads to the wastage of much of the data that was collected – everybody else's responses towards code 23. A second option is to include the missing node in the analysis and substitute all their missing data with zeros (non-interaction). This preserves everybody else's responses towards the missing node. It does however add a type two error by underestimating interactions. The third option is to use a form of imputing. This means utilising information from the available data to substitute for the missing node's data. As explained by Huisman (2009), this can be achieved through, for example:

- imputing unconditional means (putting in ones for dense networks and zeros for less dense networks)
- imputing from unconditional distributions (using a donor's score, i.e. using data from someone who is similar)
- imputing conditional means (predicting missing values based on links between the missing data and observed data)
- imputing from conditional distributions (imputing regression predictions with an added error term drawn from a normal distribution)

Each of these has drawbacks, for example maintaining means, but biasing variances or exaggerating perceived relationships between variables.

Within this study there are missing nodes due to questionnaires not being completed by participants. Hypothesised reasons include a lack of time, lack of interest in the topic, fear of exposing a personal dearth of interactions and absence from work (maternity). The high response rates from all practices (range 76.9% to 100%), however, indicates that the majority of the network is represented. These rates are higher than the suggested acceptable rates (over 70%) for many indices in an assessment of missing data (Kossinets, 2006). The missing individuals are spread across professions. Receptionists had the most missing individuals; perhaps due to the part time nature of the occupation. Veterinary nurses and administrators were the least affected by lack of response. This may be due to a particular interest in the topic, or perhaps because administrators are easily approachable in their offices. Unfortunately on four occasions a partner (veterinary surgeon) did not return their form; however in all instances they were just one of several partners. This is likely to be due to a lack of time.

These types of missing data are natural during voluntary questionnaire based studies and a return of less than 100% was predicted prior to the study. Unfortunately missing edges were introduced through incomplete rotas (the list of names) as identified above. I ensured that I took blank questionnaires on visits in case this occurred. I could give the missed individual a questionnaire, therefore reduce missing nodes. I also added their name onto the bottom of the list of the other questionnaires. This meant that anyone who had not yet filled in the form could respond to the missed individual. I did not however ask those who had already filled in the form (and not noticed the missing individual) to add them onto their form. I felt this would have been too inconvenient.

The three peer reviewed publications on which I have based my SNA revealed varying response rates (from 65.6% to 96.6%) and showed no indication of using imputation; although it is not known if this aspect was excluded because it was seen as too in depth for an article. The response rates and subsequent statistics are detailed in Appendix 5. Personal correspondence with Judith Wagter reinforced that you should not completely remove those who have not returned their questionnaire. She also advised drawing the network and performing basic analysis with and without missing individuals to observe the difference.

I therefore compared populations with and without missing data. The number of connections and therefore density of connections were significantly different

between the two populations (Wilcoxon Signed Rank Test  $P < 0.001$ ;  $P < 0.001$ ). This would be expected as there are obviously fewer number of connections if individuals are removed, but by removing individuals the densities increase. The statistic 'average degree' however was not significantly different between the two populations. The results of the betweenness centrality showed a significant correlation (Spearman's Rho  $P = 0.001$  or  $P < 0.001$ ) between the two populations indicating no influential difference in the ranked order of individuals.

The response rates from all practices were higher than 75% which is unusually high for a questionnaire study. It is therefore my feeling that removing missing individuals wastes valuable data and exaggerates trends, for example reporting higher connection densities. It is also my belief that by using imputation techniques, predicted trends would be inflated. It is acknowledged that by incorporating individuals, but leaving their interactions as blank, trends may be underreported. This potential error is, however, in this particular case better than seeing effects when they do not exist. In addition, it is possible that individuals do not return questionnaires as they are unwilling to admit their few interactions, reinforcing the consideration that imputation techniques for these individuals may over estimate their relations. Further to this, the non-difference in average degree and betweenness centrality suggests that some measures are more robust. Preference to these measures will be given. The reciprocity score is the one statistic that uses data with missing individuals removed. This is because there is no chance of reciprocated connections with someone who did not complete the questionnaire. Including missing individuals in this score would be unrealistic. The sociograms also do not include missing nodes. If they are included, their obvious peripheral nature (due to lack of response) draws the eye. This is detrimental to considering the true interactions in the network.

As the results will show, overall interaction patterns between practices were very similar, giving validity to the methods used. Participants also confirmed the accuracy of the sociograms during the embedded case study as explored in the Observational SNA part of this chapter.

## Outcomes and Implications - Practices

### Participating Practices

Of the 43 practices approached, 12 were visited. The results of 11 of these practices are detailed in this chapter.

The practice termed 'Code 12' was an especially large referral practice and was keen to take part, welcoming me into their practice over two days. While the first day was fruitful, the second visit did not add many responses. Two months after the visit, and after much follow up contact, the response rate was still just 36.0%. This was likely to be due to the size of the practice and the workload of the staff. This response was not considered sufficient to be included in the main study; however it still meant that 49 questionnaires had been returned. So that these data were not wasted, and the input from those who did take part fully respected, the results were analysed and a report provided to the practice. This practice is not referred to again in the thesis.

Details of the 11 practices can be found in Tables 3 and 4. Table 3 shows the practice types and overall respondents. Table 4 demonstrates the detailed information regarding respondents' professions.

For simplicity, the column titles are: veterinary surgeon, veterinary nurse, admin, reception, other clinical and other non-clinical. Veterinary surgeons are divided into partners and assistants. Veterinary nurses are divided into Registered Veterinary Nurses (RVN), listed veterinary nurses (VN) and student veterinary nurses (SVN). Not that all practices used these terms. For example, partners were also termed directors (code 1), owners (code 2, 7, 8) and founders (code 4). Veterinary surgeons were subtitled associate (code 6, 9) or assistant (code 9). Referral practices also used different terms, for example specialist consultants (code 8). The admin group included for example practice managers, office managers, stock controllers and accounts staff. The 'other clinical' individuals were for example kennel assistants or groomers while the 'other non-clinical' consisted of builders, maintenance staff and cleaners.

The locations of the practices are not provided to maintain anonymity. The aim to span England was achieved with practices in the north, south, central, south west and London/South East areas.



Table 3. Participating Practice Details

Code	Type			Response Rate
	Species	Branches	Organisation	
1	Equine	Single	Independent	17 (94.7%)
2	Small	Single	Independent	14 (93.3%)
3	Small	Multiple	Independent	34 (79.1%)
4	Small	Multiple	Independent	30 (76.9%)
5	Mixed	Multiple	Corporate	60 (83.3%)
6	Mixed	Multiple	Corporate	25 (78.1%)
7	Small	Single	Independent	8 (100%)
8	Small (Referral)	Single	Independent	14 (100%)
9	Mixed	Multiple	Independent	47 (88.7%)
10	Small	Multiple	Corporate	16 (100%)
11	Small	Multiple	Corporate	13 (100%)

Table 4. Participating practice's respondents according to profession

Practice Code	Respondents – Number (Divisions) [Response Rate of Profession Total for the practice]						
	Veterinary Surgeon (Partner: Assistant)	Veterinary Nurse (RVN: VN: Student)	Admin	Reception	Other Clinical	Other Non Clinical	
1	8 (4:4) [87.5%]	4 (1:3:0) [100%]	4 [100%]	3 [100%]	/	/	
2	3 (1:2) [75.0%]	5 (3:0:2) [100%]	1 [100%]	3 [100%]	2 [100%]	/	
3	10 (3:7) [62.5%]	16 (12:0:4) [84.2%]	4 [100%]	2 [100%]	2 [100%]	/	
4	7 (4:3) [70.0%]	6 (6:0:0) [100%]	6 [85.7%]	10 [66.7%]	/	1 [100%]	
5	26 (10:16) [83.9%]	14 (9:0:5) [82.4%]	4 [100%]	14 [87.5%]	0 (/2) [0%]	2 [100%]	
6	11 (2:9) [84.6%]	6 (4:0:2) [66.7%]	3 [75.0%]	3 [75.0%]	2 [100%]	/	
7	3 (1:2) [100%]	4 (0:4:0) [100%]	1 [100%]	/	/	/	
8	7 (1:6) [100%]	6 (5:1:0) [100%]	/	1 [100%]	/	/	
9	15 (4:11) [88.2%]	9 (7:0:2) [90.0%]	11 [100%]	6 [66.7%]	5 [100%]	1 [100%]	
10	5 (1:4) [100%]	5 (3:0:2) [100%]	1 [100%]	5 [100%]	/	/	
11	4 (0:4) [100%]	4 (4:0:0) [100%]	1 [100%]	3 [100%]	1 [100%]	/	

In total it can be seen that the professional group with the highest number of respondents is veterinary surgeons (99), followed closely by veterinary nurses (79), receptionists (50) and administration (36), and finally others, both clinical (12) and non-clinical (4).

## Details of the Practice Meetings

I visited the practices between November 2013 - June 2014. Visits lasted between an hour and three hours and were an enjoyable chance for me to discuss the project with the participants and to answer questions as they completed the questionnaires. This took participants between approximately five and 25 minutes, depending on the size of the practice and therefore number of individuals with whom they had to consider interactions. Participants tended to stay with me during the task, although several receptionists with telephone duties took it back to their desk. It is doubtless that my visit assisted in retrieving completed questionnaires. On average 42.5% of the core team's responses were gained from the initial meeting, with the remaining completed forms being returned over a period of up to two months via post or email.

I was given a space in reception, the staff room or a meeting room where I could talk to small groups or individual participants. In most instances the representative looked after me and encouraged participation. Sometimes the representative brought participants to me, alternatively participants asked the next person to see me and once I was advised to go around the practice and find participants myself. Representatives were asked to pre-warn the staff of my visit via word of mouth, email or notices around the practice.

## Potential Ethical Issues

The use of representatives to access participants highlights an interesting ethical issue. The study is voluntary and it was important that participants were given the opportunity to opt out. This was easy for those not present at the time of my actual visit; they simply did not return the questionnaire at a later date. It would have been less easy to refuse participation for those present. However, it was still possible. In the first instance, they would have been able to discuss the project with the representative once they heard about it, and to portray their desire to be excluded.

Secondly, the questionnaire clearly stated in writing and I tried to reinforce in speech, that the study was voluntary and that they could opt out now, or at any later date. No instances of opting out occurred. Finally they could also have filled in the questionnaire in a way that implied no consideration had gone into it, as in ticking the same box for every question. This was not the case with any participant and it was clear that even those showing some reservations quickly got into the flow of answering the questions.

## Outcomes and Implications - SNA Questionnaire

In the following sections, data analysis techniques and sociograms for each of the interactions and all of the 11 practices are reported.

### Cohesion

Cohesion scores include the number of ties, density, average degree and maximum geodesic. The results show that number of ties, and hence the density and average degree, are dependent on the type of interaction as well as the size of the practice.

In considering interactions, Table 5 shows the order of interactions according to density. The results represent the average score across all practices.

Table 5. Average scores of number of ties, density and average degree for the 11 SNA practices according to interaction type

	Number of Ties	Density	Average Degree
Information	515.09	0.58	13.69
Advice	353.45	0.47	10.07
Problem Solve	242.18	0.31	6.79
Influence Change	195.55	0.27	5.66

The information interaction is the most dense, with the highest number of ties and average degree. Information sharing is therefore the interaction that occurs between the most number of people in a network. On average, the next dense interaction is

asking for advice with a slightly lower density and average degree. These two interactions could be considered 'lower order', or easier.

Problem solving and being influenced to change behaviour occur between fewer individuals. They may be considered higher order interactions. The specific order of problem solving and influencing change is surprising when compared to the literature. Wagter et al. (2012)'s study on interprofessional learning in the hospital clinical workplace was the inspiration for these two questions, however in their study, sharing thoughts (i.e. problem solving) is the "most difficult" (their quotations) indicator. It may be the case that in a veterinary practice compared to a hospital, it is more likely you will discuss a problem which leads to a behavioral change, rather than observe someone, leading to a behavioural change. However, it is acknowledged that the problem solving and influence results are quite similar.

It should be remembered that including missing individuals in the density analysis underestimates the actual density of ties. Therefore these values are a low estimation. As this is the case for all interactions, patterns are still identifiable across the results, and the similarity in patterns across practices supports the results.

The pattern of density of ties is easiest to see in sociograms. Figure 4, which follows, shows the sociograms of all four interactions for one practice. This practice (Code 6) is representative of the decline in density, having interaction densities of: information, 0.49; advice, 0.32; problem solving, 0.21; influence change, 0.19.

For all sociograms in this chapter, the key for the individual's codes is as follows:

<u>Shape</u>	<u>Label</u>	<u>Profession/Occupation</u>
Circle	VS	Veterinary Surgeon
Square	VN	Veterinary Nurse
Up Triangle	A	Admin/Office
Down Triangle	R	Receptionist
Diamond	OC	Other – Clinical
Box	ONC	Other – Non-Clinical

The colours represent the branches in which the individuals are based.

The sociograms were created using NetDraw 2.139 (Borgatti, 2002). Sociograms are not created randomly. They are created by a computer program through the best fit layout with regard to identifiable criteria. The distances between nodes are relatively arbitrary. In this project the tie is either present or absent and therefore the edges (lines) are all the same thickness. The final sociogram is actually created after an iteration of at least 100 creations. Every time the sociogram is created it will be slightly different, but this ensures that the final diagram is representative of the network.

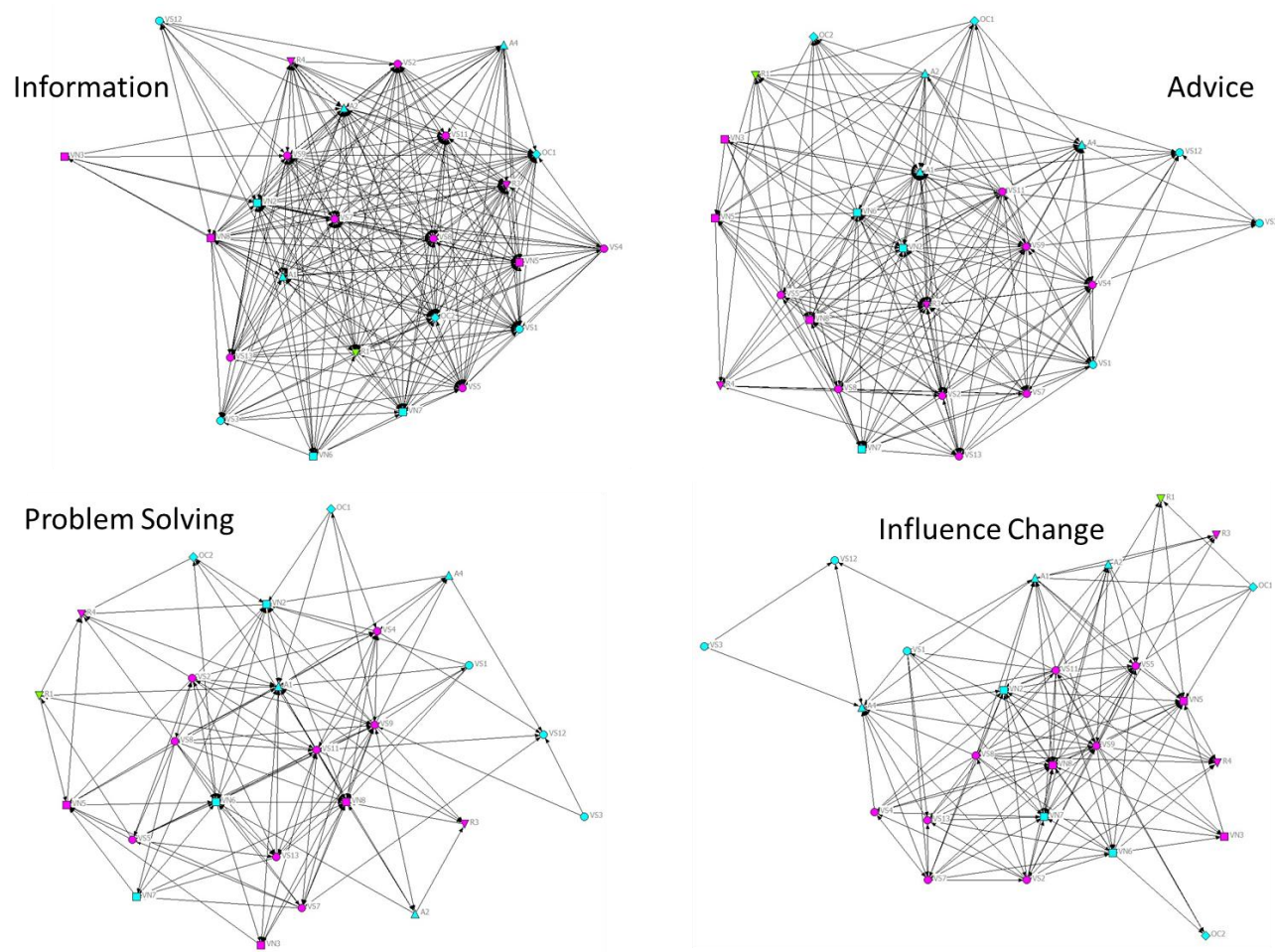


Figure 4. Sociograms of the main four interactions for Practice Code 6. Missing nodes are removed to illuminate interaction density

The densities of all interactions were on average less than 60%. It is not suggested that densities of 100% should necessarily be the aim. As explored in the introduction to SNA, in high density networks, redundant ties exist (Burt, 1992) which adds to the cost for the individual. Low density networks (which include transfer across any separated sub-groups) are useful for the transfer of novel resources such as new ideas. This fits with the problem solving interaction's density. Higher density networks are better for allowing information to spread quickly and for the whole group to abide by the same rules, creating a community. Therefore the information and advice interactions fit with this theory. Desirable densities relate to the assumed goals of the interaction (Adler & Kwon, 2002).

### Effects of Practice Size

The size of the practice also has an effect on cohesion statistics. Table 6 demonstrates the values according to practice size.



Table 6. Cohesion scores ranked according to practice size (largest to smallest). Ave Deg stands for Average Degree (outdegree). Max Geo stands for maximum geodesic

Practice		Information				Advice				Influence Change				Problem Solve			
		No. of Ties	Density	Ave Deg	Max Geo	No. of Ties	Density	Ave Deg	Max Geo	No. of Ties	Density	Ave Deg	Max Geo	No. of Ties	Density	Ave Deg	Max Geo
5	60	1891	0.37	26.24	3	1188	0.23	16.50	4	660	0.13	9.17	5	854	0.17	11.86	4
9	47	1204	0.44	22.72	4	907	0.33	17.11	3	400	0.15	7.55	5	524	0.19	9.89	5
3	34	585	0.32	13.61	3	378	0.21	8.79	5	234	0.13	5.44	6	320	0.18	7.44	5
4	30	664	0.45	17.03	3	389	0.26	9.97	4	281	0.19	7.21	4	307	0.21	7.87	4
6	25	489	0.49	15.28	3	314	0.32	9.81	4	184	0.19	5.75	7	206	0.21	6.44	4
1	19	257	0.75	13.53	2	167	0.49	8.79	5	88	0.26	4.63	4	101	0.30	5.32	4
10	16	150	0.63	9.38	3	148	0.62	9.25	2	68	0.28	4.25	4	90	0.38	5.63	3
8	14	123	0.68	8.79	2	125	0.69	8.93	2	70	0.39	5.00	3	74	0.41	5.29	3
2	14	125	0.60	8.33	3	127	0.61	8.47	4	85	0.41	5.67	4	87	0.41	5.80	4
11	13	136	0.87	10.46	2	103	0.66	7.92	2	53	0.34	4.08	5	71	0.46	5.46	5
7	8	42	0.75	5.25	4	42	0.75	5.25	2	28	0.50	3.50	3	30	0.54	3.75	3

As Table 6 depicts, the number of ties decreases with decreasing practice size for all four interactions. This is largely to be expected as with less people there are fewer opportunities for ties. The density tends to increase, which is due to the fact that while the total number of ties decreases, the number of possible ties decreases further. The average degree also tends to decrease. There are of course certain exceptions to these trends, for example practice Code 3 has a lower than expected density for the information interaction and the advice interaction and practice Code 11 has a high average degree for the information interaction.

The influence of size on density means that consideration must be given by practices to the notion of expanding their team. Methods to ensure communication between the growing team should be considered. This finding is revisited in Chapter Nine which triangulates the data.

In any given circumstance, there is a limit to the number of people who can interact with you. The average degree depicts this score and therefore should not be as affected by practice size as other indices. That is, until practice size falls below a value where it is possible to have interactions with everyone. As practice Code 5 shows, it is possible to have average outdegrees of over 26 (26 people approaching you for information), therefore for practices 6, 1, 10, 8, 2, 11 and 7, it is not possible to have scores as high as Code 5 as there are not enough people in the practice. Average degree therefore is also affected by practice size in these results.

The influence and problem solving interactions demonstrate, however, that even when there is the opportunity for the smaller practices to have similar results to the larger practices, they do not; instead their average degrees remain smaller. Therefore the ties that do exist are made on a choice, and a similar choice is made to not connect with another. Smaller practices therefore have similar patterns to larger ones rather than making full use of their small size. Potential reasons for this include the desire to interact with members of the same profession, or proximity as explored extensively below.

Interestingly, the maximum geodesic (the longest shortest path between any two nodes in a network) remains fairly constant between practices of different sizes. There are examples of the smaller practices having smaller geodesics and the larger practices having larger geodesics, however all practices display the ability for information or knowledge to move within the network relatively easily. Any possible dyad is usually no more than three or four people apart.

## Physical Proximity – Branches

Four of the 11 practices were single site practices. All of the other practices had multiple branches (two branches,  $n=3$ ; three branches,  $n=1$ ; five branches,  $n=3$ ). In all cases there were identifiable main branches and satellite branches.

Common sense suggests, and research confirms, that groups who work at different times (Cott, 1997), or within different locations (Cross & Parker, 2004), are less likely to have interactions with each other. The sociograms of several of the practices demonstrate a lack of information flow and therefore a divide between members of different branches within the same practice.

Practice Code 3 has an average distance of 18.3 miles between its branches. Staff rarely work across the two main branches, but may work across the satellite branches. The two branches of Practice Code 9 are just 13.9 miles apart but both branches have their own dedicated staff. Practice Code 4 shows little split between the four branches which are located all within six miles of each other, and where many individuals work across the branches, but experience aspects of structural holes between themselves and their sister practice, which is located up to 18.4 miles away and has several dedicated staff members. Practice Code 5 does experience some holes in the sociograms based on branches, but not as much as their average distance of 20 miles, or their fairly branch-based staffing, would suggest. Practice Code 6 with an average distance of 14.5 miles and Practice Code 10 with a distance of 4.7 miles have staff who mostly work across branches and both show limited holes in their sociograms. The two most extreme examples of branch divides are displayed via sociograms in Figure 5.

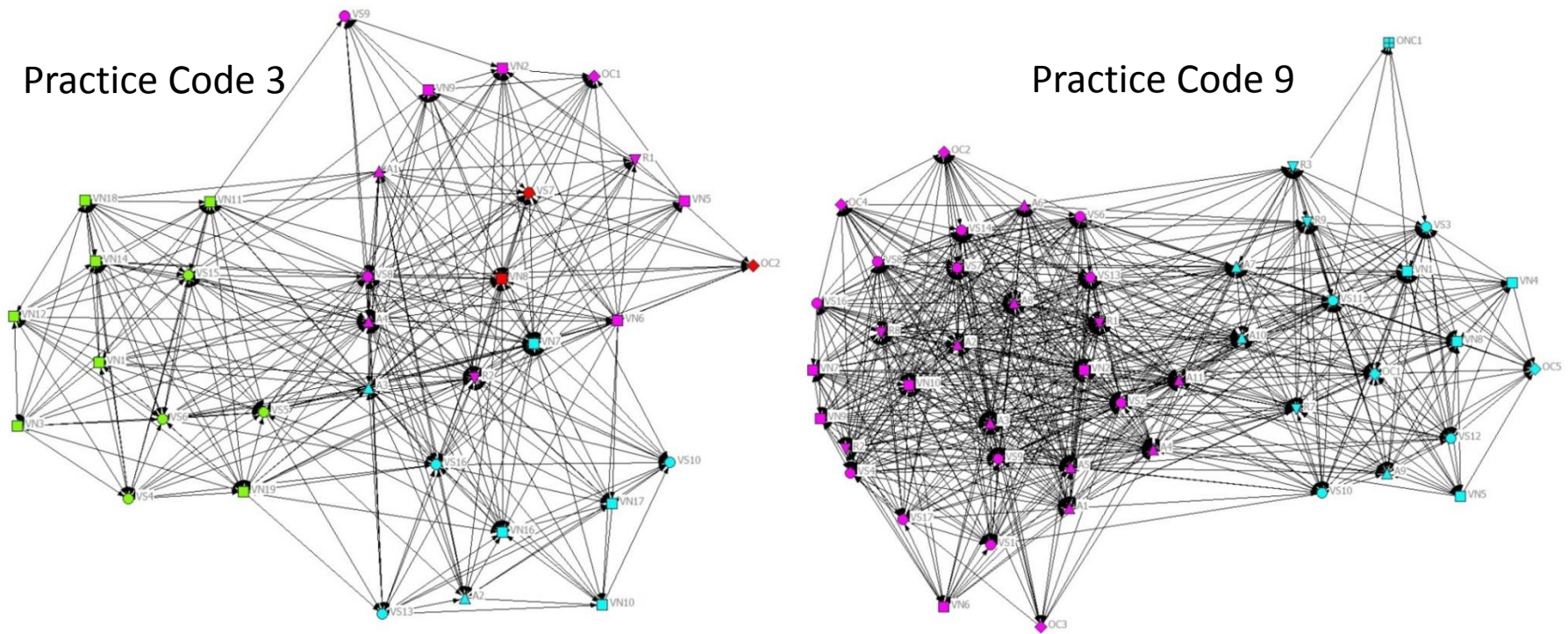


Figure 5. Demonstrating the influence of physical proximity on ties. Node colours represent practice branches. Practice Code 3 has five branches, though only four are designated as an individual's core branch. Practice Code 9 has two branches. The interaction shown is information receiving.

The potential significant influence of branches adds to a practice's considerations about how to expand. There are challenges to both expanding on one site, and by adding a new branch.

## Key Individuals

There are a number of ways to use SNA to assess who are key players in the transfer of resources within a network. Firstly you can look at the centre of sociograms. In addition to this it is possible to use two scores – outdegree and betweenness centrality – as described earlier in Table 2. Outdegree and betweenness centrality scores can be ranked in order to ascertain the core and peripheral members of the practice. Core people are those who resources travel from (outdegree) and through (betweenness centrality) frequently.

### Betweenness Centrality

The top five individuals for betweenness centrality were considered for each interaction. Table 7 demonstrates these results. It should be noted that the same individual can, and frequently does, appear in several of the interactions. Therefore the total score is separated into instances as well as individuals. The profession with the largest representation across the interactions is veterinary surgeons with 94 instances of a veterinary surgeon being in the top five for all four interactions (consisting of 43 separate individuals). Veterinary nurses made up the next largest cohort: It can be seen that nurses feature in the top five across all four interactions. Veterinary surgeons however feature more frequently in the advice, influence and problem interactions, while administrators and receptionists feature more strongly in the information interaction than the other interactions. Other clinical and other non-clinical individuals rarely feature at all.

Table 7. Frequency of individuals with the top five betweenness centrality scores across each interaction. Greyed squares indicate highest occurrences for each profession

Profession Code	Information	Advice	Influence	Problem	TOTAL Instances	TOTAL Individuals
VS	16	27	25	26	94	43
VN	12	15	16	17	60	29
A	18	7	9	7	41	20
R	7	5	4	5	21	12
OC	1	1	1	0	3	2
ONC	1	0	0	0	1	1

To establish if these results were due to chance or other factors, Chi Squared tests were used. There was a significant difference between the proportion of professions that would have been expected and that which was observed ( $\chi^2$   $P < 0.05$ ).

Veterinary surgeons and administrators were overrepresented (VS - 40% of betweenness centrality top scorers: 35% of population. A - 19% of betweenness centrality: 13% of population). This was countered by underrepresentation by receptionists (11% of betweenness centrality: 18% population).

### Outdegree and Indegree

The top three individuals were considered for their outdegree scores (the number of individuals who ask for information/advice from them) and their indegree scores (the number of individuals they seek information/advice from). The range of scores for degree is much smaller than for betweenness centrality and therefore fewer individuals were considered. Table 8 shows the frequencies of each profession according to interactions. Again, the same individual can be included in more than one interaction and totals represent instances and individuals. The veterinary surgeon profession features most often in the outdegree scores suggesting that many individuals seek these individuals out for information, advice and to problem solve with, and are most influenced by their behaviour. Administrators feature in the top three for the information interaction, but less so for the other interactions. Veterinary nurses are seldom the person sought most for advice but they are influential and sought for problem solving. Receptionists feature relatively little in the

top three scores and other-clinical and other-non-clinical individuals do not feature at all.

The individuals with a high outdegree show a similar pattern in their professional group to the betweenness centrality results. Again Chi Squared tests indicated a significant difference between the proportion of professions that would have been expected and that which was observed ( $\chi^2$   $P < 0.01$ ) with a similar overrepresentation of veterinary surgeons and administrators (VS – 48% of outdegree: 35% population, A – 22% of outdegree: 13% of population) and underrepresentation of receptionists (4% outdegree: 18% of population) and 'others' (1% of outdegree: 5% population).

The second half of the table shows that individuals from the veterinary nursing profession are those most represented in the top three indegree scores. This means that certain veterinary nurses ask many people for information, advice and to problem solve with, and are especially influenced by the most number of other people. Veterinary surgeons also seek others for problem solving, however they are not the profession most likely to ask for information, advice or to be influenced by others.

Chi Squared tests indicated a significant difference between the proportion of professions that would have been expected and that which was observed ( $\chi^2$   $P < 0.05$ ). For this index, veterinary surgeons are underrepresented (27% of indegree: 35% of population) while the other main professional groups are all slightly overrepresented in seeking resources, especially receptionists (VN – 31% of indegree: 28% of population, A – 16% of indegree: 13% of population, R – 25% of indegree: 18% of population).

Table 8. Frequency of individuals with the top three outdegree and indegree scores according to interaction and profession. Greyed squares highlight the higher frequencies for each profession

	Prof. Code	Information	Advice	Influence	Problem	TOTAL Instances	TOTAL Individuals
Outdegree	VS	13	17	15	18	63	26
	VN	6	4	9	8	27	14
	A	9	7	5	3	24	12
	R	2	2	1	1	6	2
	OC	0	0	0	0	0	0
	ONC	0	0	0	0	0	0
Indegree	VS	6	6	7	11	30	22
	VN	9	9	15	11	44	26
	A	8	2	3	4	17	13
	R	7	12	5	4	28	21
	OC	0	1	0	0	1	1
	ONC	0	0	0	0	0	0

It is acknowledged that, unlike betweenness centrality, several individuals could have had the same outdegree and indegree scores because the potential range in scores is much less. Taking the top three as an arbitrary value therefore has limitations. The order of individuals with the same outdegree was created via their ID code, which was randomly assigned and therefore when taken across all practices, corrects somewhat for this limitation.

### Features of Key Individuals

Taking the measures together, individuals who scored highly in both outdegree and betweenness centrality for all four main interactions were considered key individuals, or information brokers according to Cross and Parker (Cross & Parker, 2004). In total 50 individuals were identified to be 'key'.

The demographics of these individuals are shown in Table 9.



Table 9. Demographics of the 50 key individuals (some missing information). Bold indicates modal value

Gender	Male	20	Age (years)	16-24	1
	<b>Female</b>	<b>29</b>		25-34	13
				<b>35-44</b>	<b>17</b>
				45-54	14
				55-64	2
				65+	1
	Total	49		Total	48
Experience (years)	<10	13	Current Practice (years)	<1	1
	<b>10-20</b>	<b>22</b>		1-5	10
	>20	13		5-10	16
				<b>&gt;10</b>	<b>20</b>
	Total	48		<b>Total</b>	<b>47</b>
Hours	<b>Full Time</b>	<b>38</b>	Branch	<b>Main</b>	<b>41</b>
	Part Time	10		Other	9
	Total	48		Total	50

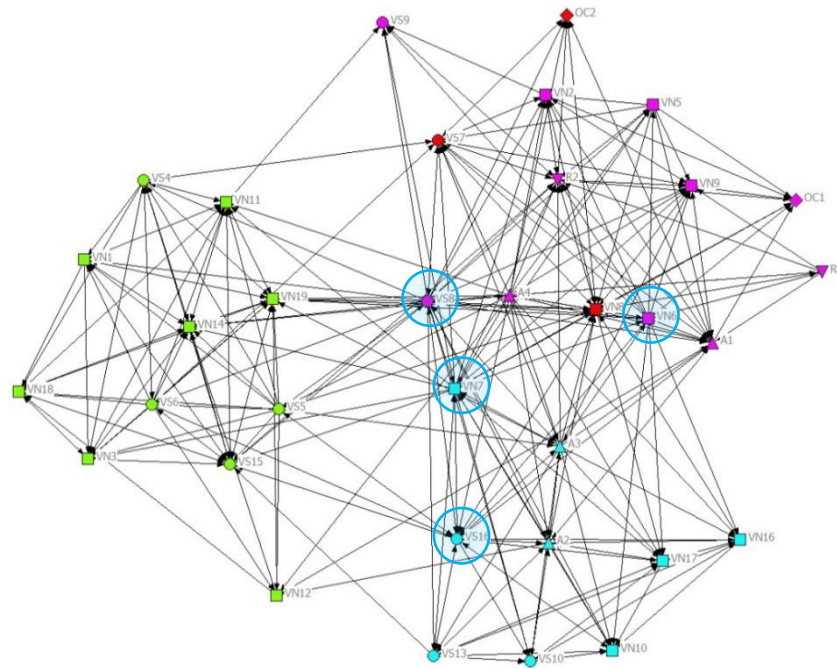
Key individuals comprised 26 veterinary surgeons, 11 veterinary nurses, 11 administrators and two receptionists. This is an overrepresentation of veterinary surgeons (52% key: 35% population) and administrators (22% key: 13% population), and an underrepresentation of veterinary nurses (22% key: 28% population) and receptionists (4% key: 18% population) and of course 'other' individuals who were not represented at all.

These are the individuals most involved in resource transfer within their respective practices. They are therefore important people in the running of the practice either providing direct advice or help, or by being a gatekeeper to information from others. They could be considered to be 'energisers' (Cross & Parker, 2004 p54) as they are most likely to be heard and to have their advice adhered to. The question remains at this point however, whether the information or advice which travels though the network is actually acted upon or not. It could tentatively be assumed, however, that someone would stop asking an individual for advice if they never chose to act upon it previously. The case studies and triangulation aspects of this PhD enhance the understanding of what makes these people key, what their effects are upon the network, and what the effects are upon themselves.

Many of these information brokers can also be termed 'boundary spanners', in terms of physical location or profession (Cross & Parker, 2004) and 'marginal people' (belonging to two or more social worlds) (Star & Greisemer, 1989). These concepts are explored extensively in subsequent chapters. Key people may gain advantages through the concept of structural holes as they are first to access new information from one group which they can introduce to another, making them a desirable contact and giving them a degree of control.

Sociograms highlight physical boundary spanners. Practice Codes 3 and 9 have already been recognised as practices with separation in behaviour according to branch. Their sociograms are displayed again below in Figure 6 (this time for the advice interaction) with the key individuals emphasised.

Practice Code 3



Practice Code 9

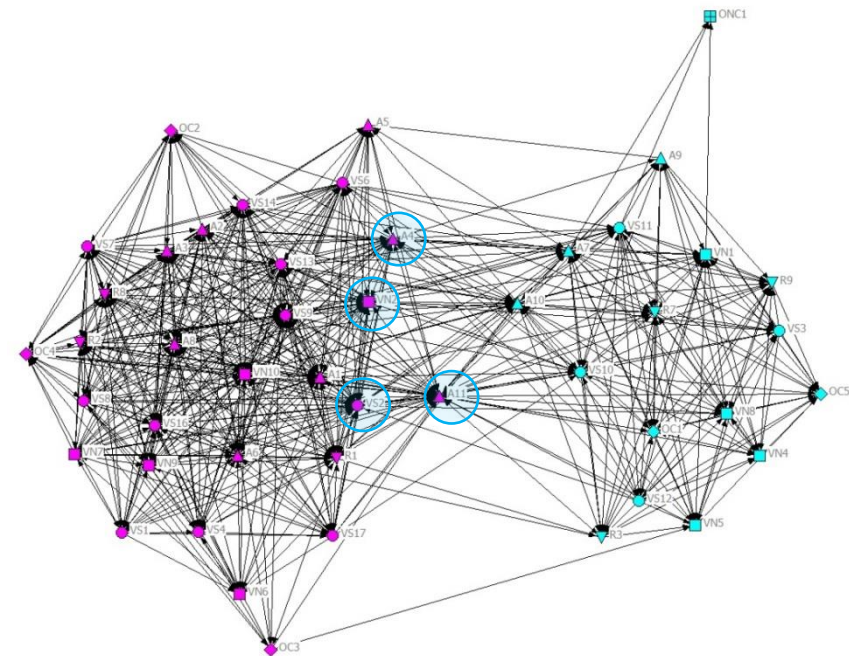


Figure 6. Displaying the key individuals for practice Codes 3 and 9 in the advice sociograms. Key individuals are often boundary spanners between physical locations such as branches of practices, portrayed as different coloured nodes in the sociograms

Marginal people in the veterinary field include those in clinical roles who also function within administration roles, for example as a practice owner. Veterinary nurses in general may feel that they belong to more than one world as they can undertake reception and administration duties, work closely alongside a veterinary surgeon in clinical tasks and also perform their own nursing specific roles.

Appointed leaders regularly feature as key people; 22 directors/partners, eight Head Nurses and 11 administrators. All Administrators can be considered appointed leaders as they consisted of practice/business managers, HR managers, branch managers and finance managers. A detailed look at the results show that for the indicator betweenness centrality, of the 94 instances when a veterinary surgeon featured in the top individuals list, 52 instances (55.3%) were of partners/owners or equivalent. Of the 60 instances of veterinary nurses in the top scores, 29 (48.3%) instances were of head veterinary nurses. For the indicator outdegree, of the 63 instances when a veterinary surgeon featured in the top three, 48 (76.2%) were owners/partners. Of the 27 instances of veterinary nurses, 16 (59.3%) were head nurses. Given that there are relatively few partners (range 0-12, median 2.5) and head nurses (0-3) in each practice, these percentages are very large indicating that marginal people and appointed leaders have significant influence on resource exchange.

The remaining 11 key individuals were non-appointed leaders including veterinary surgeons, veterinary nurses and receptionists. This demonstrates the existence of informal or emergent key people with leadership attributes. Further research to fully understand these emergent leaders is encouraged.

The importance of focussing on the interplay between the whole structure and individual traits has been recently highlighted in healthcare (Tasselli, 2015). These results add to this important area of research.

## Interprofessional Interactions – Assessing Hierarchy

In this section, interprofessional interactions are considered in two ways: firstly the density of interactions between the professions and secondly via reciprocity scores. These measures are described previously in Table 2 and are expanded upon below.

### Profession Densities

Average densities across all professions are shown in Table 10. Information values are clearly similar indicating that overall, information transfer is as likely to be between members of different professions as members of the same profession. For all other interactions the intraprofessional density is substantially greater than interprofessional density. Resources are more likely to travel within one profession which has benefits for profession specific development but demonstrates a lack of interprofessional sharing for higher order interactions. Members of your own profession are more valued for their problem solving and influential abilities.

Table 10. Densities of each interaction according to intra or interprofessional status

Interaction	Intraprofessional	Interprofessional
Information	0.59	0.56
Advice	0.49	0.39
Problem Solving	0.42	0.23
Influence Change	0.38	0.19

Table 11 which follows portrays the density of interactions within and between each professional group. Some care must be taken in interpreting these results as they are a combination of all 11 practices. In some practices there were only one or two members of each professional group which exaggerates their interactions. This occurred for all professions except veterinary surgeons and veterinary nurses. Analysis will therefore focus on these two groups, but will include the other groups where possible.

In Table 11 columns represent the receivers of the resource (e.g. advice). These are the individuals who asked someone else for advice and are the people who

answered the questionnaire about their colleagues. The rows represent the senders of advice. These are the individuals who were asked for advice, the colleagues in the questionnaire.

Table 11. Density of interactions between professional groups. Light blue squares indicate intraprofessional interactions, all other interactions are interprofessional. The columns are the receivers of information/advice and the rows are the senders.

				Receiver				
		Profession Code	VS	VN	A	R	OC	ONC
Information	Sender	VS	0.564	0.624	0.751	0.590	0.469	0.256
		VN	0.473	0.603	0.686	0.663	0.456	0.286
		A	0.680	0.718	0.805	0.751	0.470	0.421
		R	0.462	0.506	0.805	0.650	0.369	0.250
		OC	0.265	0.303	0.555	0.356	0.230	0.000
		ONC	0.199	0.268	0.351	0.232	0.000	0.500
Advice		VS	0.502	0.607	0.488	0.604	0.309	0.086
		VN	0.361	0.554	0.264	0.640	0.340	0.050
		A	0.447	0.597	0.552	0.659	0.345	0.233
		R	0.198	0.325	0.262	0.554	0.189	0.000
		OC	0.095	0.159	0.099	0.349	0.140	0.000
		ONC	0.173	0.183	0.089	0.177	0.000	0.000
Problem		VS	0.525	0.353	0.341	0.273	0.221	0.102
		VN	0.257	0.486	0.203	0.247	0.222	0.015
		A	0.327	0.328	0.488	0.433	0.197	0.171
		R	0.089	0.186	0.222	0.290	0.054	0.000
		OC	0.023	0.113	0.030	0.163	0.120	0.000
		ONC	0.075	0.088	0.042	0.063	0.000	0.500
Influence		VS	0.387	0.389	0.313	0.240	0.132	0.102
		VN	0.161	0.402	0.154	0.196	0.178	0.000
		A	0.250	0.415	0.329	0.420	0.113	0.171
		R	0.044	0.146	0.141	0.364	0.046	0.000
		OC	0.021	0.075	0.048	0.127	0.220	0.000
		ONC	0.016	0.102	0.048	0.000	0.000	0.500

For three interactions initiated by veterinary surgeons, the highest densities are with other veterinary surgeons (VS column). However for the information interaction,

veterinary surgeons ask more administrators for information than other veterinary surgeons. Interprofessional ties are also common with veterinary nurses and receptionists for the information interaction. Many veterinary surgeons provide administrators with information (highest density of veterinary surgeons as senders - VS rows).

Veterinary nurse initiated ties are often interprofessional (VN column). The only time that the intraprofessional density is the higher is for the problem solving interaction. In all other interactions, ties with veterinary surgeons and administrators also have high densities. The highest density of ties whereby the veterinary nurses are the senders (VN rows) is again the information interaction with administrators.

The administration group shows similar results to the veterinary surgeons with higher intraprofessional densities for advice, problem solving and influence, but there are a number of interprofessional ties, especially in the information interaction. Receptionists are more like nurses with high interprofessional densities across the four interactions. Their intraprofessional score for problem solving is especially low.

## Reciprocity

This section will now consider reciprocity. In a hierarchical team (also termed vertical), individuals lower in status seek information or advice from their superiors, but this is not reciprocated. If the network is horizontal, individuals often reciprocate interactions across traditional boundaries such as professions.

In this case, a hierarchical situation would be found if instances of any given veterinary nurse asking a veterinary surgeon for advice (or any interaction) were not necessarily reciprocated by the veterinary surgeon. However if any given veterinary surgeon asked a veterinary nurse for advice, then the veterinary nurse would reciprocate. Table 12 shows the structural nature of the networks.



Table 12. Reciprocation scores according to profession and interaction. The columns represent the receiver of the information/advice and the rows represent the sender

			Receiver					
		Profession Code	VS	VN	A	R	OC	ONC
Information	Sender	VS	0.576	0.649	0.854	0.600	0.469	0.083
		VN	0.764	0.513	0.738	0.619	0.522	0.167
		A	0.819	0.721	0.757	0.851	0.628	0.500
		R	0.752	0.810	0.924	0.721	0.410	0.167
		OC	0.983	0.890	0.752	0.805	0.375	0.000
		ONC	0.167	0.333	0.500	0.167	0.000	0.000
Advice		VS	0.465	0.484	0.663	0.275	0.254	0.190
		VN	0.769	0.459	0.489	0.397	0.218	0.000
		A	0.654	0.305	0.316	0.312	0.211	0.178
		R	0.701	0.739	0.706	0.436	0.179	0.000
		OC	0.538	0.720	0.200	0.189	0.067	0.000
		ONC	0.051	0.000	0.667	0.000	0.000	0.000
Problem		VS	0.584	0.537	0.606	0.189	0.172	0.259
		VN	0.746	0.525	0.426	0.393	0.619	0.250
		A	0.673	0.445	0.469	0.433	0.200	0.333
		R	0.339	0.470	0.612	0.262	0.333	0.111
		OC	0.171	0.650	0.133	0.150	0.200	0.000
		ONC	0.333	0.286	0.333	0.333	0.500	1.000
Influence		VS	0.345	0.272	0.352	0.071	0.143	0.125
		VN	0.662	0.328	0.168	0.168	0.214	0.000
		A	0.445	0.187	0.216	0.148	0.095	0.111
		R	0.370	0.273	0.206	0.235	0.143	0.000
		OC	0.320	0.533	0.200	0.100	0.400	0.000
		ONC	0.333	0.000	0.333	0.000	0.000	0.000

These scores suggest that the traditional hierarchical structure is present. We will reflect upon veterinary surgeons and veterinary nurses particularly. Consider the

advice interaction. The VS(sender)-VN(receiver) reciprocity score of 0.484 shows that when a nurse asks a veterinary surgeon for advice, only 48.4% of those veterinary surgeons also ask the same nurse for advice. This is much lower than the VN(sender)-VS(receiver) reciprocity score (0.769) which shows that if a veterinary surgeon asks a nurse for advice then 76.9% of those nurses also ask that veterinary surgeon for advice. This hierarchical structure of transfer between veterinary surgeons and veterinary nurses also holds true for the information (0.649 : 0.764), problem solving (0.537 : 0.746) and influence (0.272 : 0.662) interactions.

Overall, if a veterinary surgeon asks a member of any other profession for information, 75.0% of individuals will reciprocate. However, if any member of another profession asks a veterinary surgeon for information, only 65.1% of veterinary surgeons will reciprocate. This pattern is similar for the advice interaction: 64.3% reciprocation of others and only 45.1% reciprocation by veterinary surgeons, the problem solving interaction: 52.4% reciprocation of others and only 40.3% reciprocation by veterinary surgeons and finally the influence interaction: 46.8% reciprocation by others and only 22.4% reciprocation by veterinary surgeons. This shows an overarching dominance of veterinary surgeons within veterinary practices. As seen in the key individuals section, many veterinary surgeons hold key positions in practice. There are potential problems with a hierarchy and key people belonging to the dominant group as they may form a bottleneck (Cross & Parker, 2004). For example if they do not have the time to deal with the queries from the rest of the team. It seems that the administration group is fielding some of this responsibility when it comes to the information interaction. In the future perhaps the veterinary nurse group could act likewise for the other interactions.

Currently however, for veterinary nurses, the picture is quite different from that of the veterinary surgeons. For the information and advice interactions, the reciprocations are similar, demonstrating a horizontal structure. If a veterinary nurse asks a member of another profession for information, 70.5% of individuals will reciprocate, while if any member of another profession asks a veterinary nurse for information, 66.0% of veterinary nurses will reciprocate. For the advice interaction, the reciprocations are very similar: 49.9% reciprocation of others and 49.3% reciprocation by veterinary nurses. The problem solving interaction begins to show the balance shifting from horizontal to vertical with nurses at the bottom of the hierarchy. There is an overall 47.5% reciprocation by others for problem solving and

53.5% reciprocation by nurses. This pattern is stronger for the influence interaction, with 24.5% reciprocation of others and 32.2% reciprocation.

When the professional groups are merged, it is possible to see the influence of the type of interactions on reciprocity within and between groups. These results are depicted in Table 13.

Table 13. Average intraprofessional and interprofessional reciprocity according to interaction type

<b>Interaction</b>	<b>Uniprofessional reciprocity</b>	<b>Interprofessional reciprocity</b>
Information	0.583	0.680
Advice	0.396	0.453
Problem	0.472	0.425
Influence	0.310	0.244

For information receiving, an individual is more likely to reciprocate with a member of another profession than with a member of their own profession. Professions realise that other groups have information which they do not. This is also the case, though to a lesser degree, for asking advice.

The less than 100% uniprofessional reciprocity indicates a hierarchical structure within the professions as well as between them. There are slightly lower levels of reciprocity between nurses than between veterinary surgeons, indicating a stronger intraprofessional hierarchy within the nursing profession.

## Social Interaction

In addition to the four information interactions, the SNA questionnaire also asked participants to indicate with whom they socialise. This was clarified to mean more than simply attending the staff Christmas party. Practices average indegrees for the social score (the number of people they nominated) ranged from 1.1 to 8.4. On

average people indicated four others with whom they socialise. The size of the practice seems to have some effect with fewer nominations from smaller practices; however practice Code 2 with only 14 people has the exceptionally high score of 8.4.

Literature suggests that social interactions can influence the way that we work. Adler and Kwon (2002) developed a new concept of social capital. Their working definition is:

Social capital is the goodwill available to individuals or groups. Its source lies in the structure and content of the actor's social relations. Its effects flow from the information, influence, and solidarity it makes available to the actor (Adler & Kwon, 2002, p23).

As they describe, social ties are appropriable, meaning that one kind of tie can be used for different purposes; a friendship tie can be used to find advice. It has been found that having someone you can call your best friend at work is a significant factor in productivity and is therefore part of the Q12 survey by the Gallup Team (Harter, Schmidt, Agrawal, & Plowman, 2013). Cross and Parker (2004) suggest that when we have a question, we go to people we trust. However this can be a problem if we go to people we like rather than the most appropriate person (Cross & Parker, 2004).

Chi Squared tests with Yates correlation for a 2x2 contingency table with one degree of freedom indicate that the frequency of interactions between individuals relies significantly on whether or not the individual considers themselves to be social with the other member of the dyad – but that this is affected in turn by the type of interaction. P values for all four interactions are  $P < 0.001$ . The frequencies of the interactions can be seen in Table 14. For information sharing, if you report a social interaction with another, you are 3.1 times more likely to ask them for information. With regard to asking for advice, an individual is 1.9 times more likely to ask someone they are social with for advice. Problem solving shows similar results with individuals being 1.7 times more likely to problem solve with their friends. Surprisingly, being social does not guarantee that you will be influenced by another's behaviour. This result may be a factor of the relatively infrequent reporting of the influence interaction. Not being social with someone is linked to not being influenced by them.

The frequency of non-social individuals receiving the resource decreases with increasing orders of interactions faster than the frequency of social individuals receiving the resources. This suggests that social individuals are more likely to interact in higher order interactions than non-social individuals.

It should be noted that causality cannot be identified through these results. It could be that individuals who provide advice turn out to become people that you socialise with, rather than your friends being those you go to for advice. It is likely that these factors are integrated and both instances can be true.

Table 14. Frequency table for social interactions per other interaction

		Social Interaction Frequency	
		Social	Not social
Information Interaction Frequency	Receive Information	1272	4417
	Do not receive information	410	4821
Advice Interaction Frequency	Receive Advice	1099	2799
	Do not receive Advice	572	6619
Problem Solving Interaction Frequency	Problem solve with	985	1674
	Do not problem solve with	594	7730
Influence Interaction Frequency	Influenced by another	765	1373
	Not influenced by another	925	8024

It is also important to remember the costs and risks of social ties and that contextual factors influence interactions. In some instances certain behaviour may be expected and rewarded from one group while the same behaviour would be inappropriate for another group or in another context, further to this, situations which promote competition are unlikely to promote social ties (Adler & Kwon, 2002). Adler and Kwon (2002) conclude that it is not sufficient to just increase social ties within a network, rather the opportunities must be provided in a culture which promotes motivation and sharing resources.

Considering the social aspects of work brings to attention the potential effects of personality on network position. Cross and Parker (2004) describe four categories of nodes in a network: central connectors, boundary spanners, information brokers and peripheral specialists. We have already met the two that are key to the current research, boundary spanners and information brokers, earlier in this chapter. Cross and Parker dedicate a very small section of their book to personality, suggesting that links between network position and personality are tenuous and 'Instead of being a function of personality traits, network centrality seems to reflect how workers think about and engage in work' (Cross & Parker, 2004 P82). However recent research has suggested some links between the five factor model of personality (extraversion, agreeableness, conscientiousness, neuroticism and openness to experience) and network position (Battistoni & Fronzetti Colladon, 2014). Central connectors have high conscientiousness and low neuroticism, information brokers have low neuroticism, boundary spanners have high agreeableness, high conscientiousness and low neuroticism and peripheral specialists have high conscientiousness scores. No links were found with extraversion or openness to experience. The study also supports the social capital perspective as central connectors and boundary spanners have positive associations with exam performance (Battistoni & Fronzetti Colladon, 2014). Even early research such as Burt's concept of structural holes (Burt, 1992 p 79) suggests that being an entrepreneur (someone who takes some control in the relationship between two other individuals) "is not to everyone's taste" and suggests that the motivation is linked to culture. Personality scores may help to understand for example why some partners are key people in the network while others are not. Unfortunately due to the already large nature of the SNA questionnaires, the current study did not assess the personality of all respondents. However, the embedded case studies considered the personality of the 12 focus individuals, discussed in Chapter Eight.

## Experience

It was suggested during a presentation of my preliminary results that it would be useful to consider the level of experience of the participants when assessing network location. Several participants also mentioned how they had only been with

the practice a short period of time and they are sure they would have interactions with most of the team, but currently they did not even know them.

A Pearson's Correlation demonstrated that the length of time in current occupation and length of time in current practice were correlated. This analysis therefore concentrates on just one aspect, which can be used to imply the other.

Sociograms for each practice and each interaction were created which distinguished participants by their experience level through the colour of the node. Three time periods were provided in the questionnaire: less than 10 years, 10 to 20 years, more than 20 years. For some practices who were very young practices (e.g. Codes 2 and 10) or very small (Code 7) it was difficult to see any patterns. For the other practices the most experienced individuals were found in several parts of the sociogram. Practice Code 9, for example, featured the majority of its most experienced members in the centre of the sociograms for all interactions (on either side of the structural hole based on branch location). Practice Code 8 was more unusual as its sociograms showed the most experienced individuals being more peripheral. This practice is quite mature with only one individual in the 'less than 10 years' category. Therefore there may actually be little difference in the experience of someone who ticked option '10-20 years' and had worked for 19 years and someone who ticked 'over 20 years' and had worked 21 years. It is also possible that the more experienced individuals now work in a consultancy role leaving the mid-experienced individuals with the managerial load. Sociograms for these two practices can be seen in Figure 7.

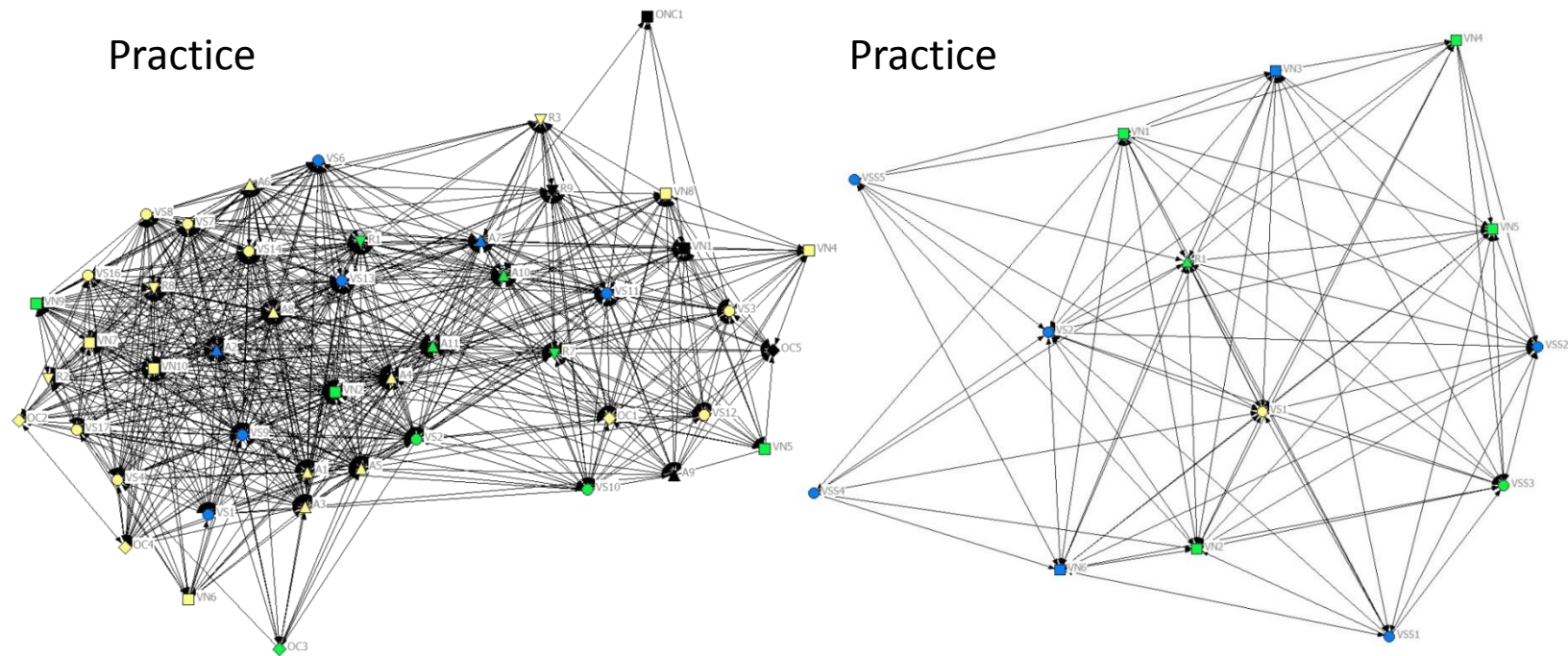


Figure 7. Information interaction for two practices. Colours represent years in practice: Yellow <10, Green 10-20, Blue >20 (Black missing information)

The 50 key individuals consist of 13 with under 10 years' experience, 22 with 10-20 years and 13 with more than 20 years. This suggests that for reasons which may include lack of experience, retirement and being set in their ways, the middle experience range produces the people most involved in resource transfer. Further investigation is required in this area to explain the phenomenon further.



## The Extended Team

The project aimed to assess the network outside of the core group to reach an 'extended team'. These were planned to be individuals involved in day-to-day, 'typical', interactions with veterinary practices. It was suggested that to qualify as an extended team member, the individual must have interacted with a core team member at least once in the last three months. A suggestion list was provided of occupations which the practice could include. The practice representative was asked to provide a list of names, while individual respondents were also invited to nominate names. Each extended team member was contacted with a SNA questionnaire. Three practices did not provide any details of extended team members. The remaining practices provided details of between two and eight individuals. A list of the occupations of nominated extended team members is as follows:

- Veterinary specialist n=6
- Drug representative n=3
- ACPAT Physiotherapist n=2
- Animal behaviourist n=2
- Groomer n=2
- Animal health inspector n=1
- Animal rescue worker n=1
- Charity treasurer n=1
- Claims consultant n=1
- Farrier n=1
- Head of corporate n=1
- Neuter voucher administrator at animal charity n=1
- Practice management software help n=1
- Product development manager at veterinary company n=1
- Puppy party provider n=1
- Slaughterman n=1
- University veterinary surgeon n=1

Response rates for extended team members was low; 25.9%. Of those who did respond, interactions with core team members were infrequent. This suggests the 'extended team' is not an interprofessional team in comparison to the 'core team'

due to a lack of interactions, and hypothetically a lack of mutual goals and understanding or value of roles.

A project in America has considered this view of interprofessional working which lies somewhere between my 'core veterinary team' and 'One Health' (Root Kustritz, Molgaard, & Tegzes, 2013). Further research in the UK is required to assess if an extended team does exist, but was not clearly identified by the current SNA, or if it is truly a rare occurrence.

## Observational SNA

Observational SNA took place at the two embedded case study sites which are explored in detail in the following chapters. By shadowing specific individuals, the self-reported questionnaire data were compared with objective observations.

## Methods

Six individuals at each site were chosen to shadow (12 in total). These individuals were selected based on their profession and SNA results. It was desired that each professional group would be represented by both a central and more peripheral individual. These focus individuals are introduced and the rationale for their choice explained further in Chapter Six.

Each individual was shadowed for a whole day. Their activity was recorded continuously and coded in real time with regard to information giving or receiving, advice giving or receiving and problem solving. It was not possible to observe the 'influence' or 'social' interactions and therefore these interactions are not included in the observational results. It is acknowledged that a significant proportion of the interactions could not be qualified under one of the outlined interactions and instead was considered as purely 'work'. The SNA questionnaire was cognitively focussed and therefore did not include 'work' interactions. An example would be a veterinary surgeon asking a veterinary nurse to help them restrain a cat for an injection. While the term 'help' is included in the advice interaction, this was identified as help when the individual is unsure of what to do, therefore potentially includes an element of learning, not simply assistance. The results below therefore depict clearly identifiable incidences of the interactions.

Due to the directional status of the interactions, the SNA questionnaires of both the focus individual and the person they are interacting with (the alter) were checked for each instance of interaction observed. In this way, agreement between individuals could be assessed. The specific coding of interactions can be seen in Appendix 6. Unfortunately, 20.2% of interactions involved individuals who were non-respondents or new staff and were therefore excluded.

## Outcomes and Implications

There was a high level of awareness of who individuals ask for information (87.5% matching questionnaire and observational instances of interactions). There was a similar high level of awareness of receiving information (88.5%). There was a high level of awareness of who individuals ask for advice (90.0%) and a similar high level of awareness of receiving advice (100.0%). There was less awareness of with whom an individual problem solves (non-directional interaction) (64.8%).

These results suggest that the SNA self-reported data are accurate, especially with regard to the information and advice interactions.

The shadowing was limited to one day's shift per focus individual. This ranged from 4 hours to 12 hours, average 7.9 hours. A limitation of this design is clearly that the focus individual could only interact with those individuals working on that specific day. Therefore analysis of non-interactions was not conducted, as a non-interaction does not necessitate that an interaction would not have occurred had it been possible. The interactions analysed in this section are therefore restricted.

During the interviews conducted within the embedded case studies, the participants were asked to view the sociograms. After I explained the sociograms, I asked what patterns they saw and whether the sociograms represented the team working they perceived within their practice. Universally the participants agreed that the sociograms represented their practices accurately. Several participants were also able to guess which code represented them, which further demonstrates their awareness of teamwork within the practice.

## Reflection on SNA

This chapter has covered many areas. It has identified the effects of practice size and branches on the density of team interactions, which have ramifications for practice expansion. It has identified key individuals, both appointed and emergent, which justifies further research to consider the effects of these roles. It has focused on interprofessional interactions and has described the presence of a hierarchical structure. These are patterns which would otherwise have been unseen. They are revisited through triangulation of data in Chapter Nine.

However SNA has limitations. The definition of the network is one, and the apparent failure of the extended team SNA research confirms this. The research also does not consider the client in the interaction. Interactions with clients would have been a huge addition, one too big for the current research aims.

The current methods did not look to assess frequencies and instead relied upon a present or absent tie. Further studies which consider the frequencies of interprofessional interactions might be of value. Ties are not always voluntarily chosen (Adler & Kwon, 2002; West, Barron, Dowsett, & Newton, 1999), for example individuals may be forced to ask one receptionist for information if they are the only receptionist available. Whether forced or chosen, the SNA results depict a map of the interactions which occur in practice. They do not extend this to consider the way the interactions occur or the outcomes of such behaviour. This more in-depth consideration of interprofessional working was achieved through observations and shadowing within the embedded case studies.

## Conceptualising Interprofessional Working and Learning

Prior to reporting the embedded case study findings, Chapter Five will introduce specific literature regarding IPW/L in practice. It will consider the benefits and challenges to IPW/L and will highlight fundamental theories that will form the foundations for the case study interpretation.

## **Chapter Five: Conceptualising Interprofessional Working and Learning in the Workplace**

### **Introduction**

In the previous chapters I have sought to describe the context of this thesis with reference to literature on professions and the rise of interprofessional working within the history of the veterinary field. I have also mapped interprofessional interactions in modern day veterinary teams through the use of SNA. Within this chapter, workplace working and learning literature will be explored to provide the framework for advanced investigation of the veterinary workplace interactions identified in the SNA, and in preparation for the in depth qualitative field work within the embedded case studies which follow.

Working and learning in a field such as veterinary medicine are inextricably linked. Practitioners are expected to keep up to date with advances in treatments, techniques and technologies and this can occur through formal continuing professional development (CPD) or, given the right opportunities, informally in practice through workplace learning. It is not only clinical information which must be learned, but also strategies of working within a specific team. The focus of this thesis is on the working relationship between professions and occupations in veterinary practices, and this therefore includes interprofessional learning.

This chapter will begin by revisiting the rise of interprofessional working and learning (from now IPW/L). It will then focus on the implications of interprofessional working through consideration of the challenges that face teams made up of several occupations who are working towards a common goal, alongside the beneficial outcomes of IPW/L. In conjunction with this, the chapter will explore workplace learning theories and will consider tools used to research this learning. It will focus on interprofessional workplace working and learning theories, rather than taking a wide scale consideration of the workplace learning literature. The reasons for this are that working across disciplines adds a pressure not felt in uniprofessional work. Also, learning interprofessionally does not mean that you are striving to become an expert member of the one profession, but does mean that knowledge can be shared across professions for the mutual benefit of all. There are however a limited number of published articles on interprofessional workplace learning explicitly (when seen as separate to university/hospital based undergraduate interprofessional education).

Therefore a selection of general workplace learning literature, primarily from Stephen Billett, a leading author in this field, will be used – but with an interprofessional perspective placed upon it. The chapter concludes by describing a unique view of an adapted Cultural Historical Activity Theory (CHAT) which will be used to analyse the embedded case studies using the SNA results from the previous chapter as a foundation.

## Challenges and Barriers to IPW/L

### Introduction

As I argued in Chapter Two, there have been many pressures which have led to IPW/L. As a result of this changing way of working and learning, several positive effects have arisen. That is, given that the multiprofessional working is truly interprofessional, and that professional roles and responsibilities are understood and appreciated and communication is effective. The coming together of expert and adaptive groups allows the formation of a team which is better than the sum of its parts (Burke et al., 2004). Individuals with different information and knowledge backgrounds can share their advice and experience. Team orientation allows alternative solutions by team mates to be appraised (Burke et al., 2004). Through the pooling of knowledge (Patterson, Grenny, McMillan, & Switzler, 2001), previously unconsidered thoughts can be constructed. Distributed cognition, as considered later in this chapter reinforces that one profession does not need to have all the knowledge. With interprofessional teamwork, efficiency and effectiveness can increase. The material benefits may include a reduction in errors, better patient care, increased financial rewards, client retention and a better working environment with less stress and stereotypical views. Practices which assist IPW/L can be summarised as including 1) collegial support and shared responsibility, 2) knowledge of professional roles and work processes, and 3) crossing profession and task boundaries in an inclusive atmosphere (Collin, Paloniemi, & Mecklin, 2010).

It is easy to advocate IPW/L and see its many benefits. However it is important that we remain grounded and consider the challenges that this type of interaction naturally brings. In this section a synthesis and enrichment of interprofessional

issues will be formulated to deepen the earlier accounts. The main encompassing and intertwined themes of organisation of work and communication will be explored. The majority of the research identified has come from medicine, which once again provides a useful comparison for the modern day veterinary team due to the similarities in the history of the professions and the rise of IPW/L. Added to this is the inclusion of SNA results from Chapter Four. For ease of narrative, the acronym IPW/L will include not only recognised professions within the veterinary field, but also those considered as occupations. This chapter aims to create the beginnings of a conceptualisation of veterinary IPW/L.

### **Pre-Training Motivation for Work**

Different professions may have different motivations for their work. The initial reasons for choosing to join a certain profession may differ and could ultimately create interprofessional tension. In a study regarding motivation to become a veterinary surgeon, both male and female veterinary students ranked the top reason for becoming a veterinary surgeon as 'wanting to work with animals' (Tomlin, Brodbelt, & May, 2010a). However there are significant differences between the genders for other factors, with males more influenced by the challenging reputation of the course and the opportunity it provides to join a scientific profession (Tomlin et al., 2010a). A similar study has not been carried out in the veterinary nursing field, but it can be hypothesised based on the demographics of veterinary nursing students, the public profile of a veterinary nurse and the roles that they will undertake, that becoming a professional or the demanding course (while both true) would not be driving forces. Male veterinary surgeons and female veterinary nurses may therefore differ in their ethos (status versus care) for work; however previous research has focussed on female veterinary students due to fewer males, potentially overestimating trends. Additionally, the overall desire purely to work with animals of both groups does not show a predisposition to interprofessional working, and in fact demonstrates blindness to the reality of working in a veterinary practice which involves working with clients and colleagues as much as with animals.

### **Separation of Training**

In addition to motivations prior to joining veterinary college, the separate training of professions during undergraduate years has been suggested in previous chapters to intensify different philosophical approaches due to profession's cultural differences. As described in Chapter One, the traditional role of a nurse was a

caring role and veterinary nurse education continues to involve a significant amount of hands on time learning to work with animals. While the veterinary surgeon focused on the more curative aspects (diagnostic and treatment) and their education has a large focus on pre-clinical training (involving little contact with their future patients). The different methods of teaching are grounded on the different types of learners attracted to each profession, reinforcing the “walls of the silo” (Hall, 2005). This difference in the profession’s motivation seen through training may cause disagreement on the treatment of patients and a lack of understanding of each other’s approaches to clinical issues. This is a key concept in the following chapters and is returned to in detail. Prior motivational differences added to separate training may therefore deepen ingrained boundaries, encourage stereotypes and create hypothetical walls between groups. It is possible that interprofessional education may break down these walls, or stop them from forming, and will foster and promote collaboration and communication from the earliest stages of education; a concept returned to in the final chapter.

Grounded on the historical and cultural issues explored above and in previous chapters, there are two main overarching and interlinked challenges to IPW/L - organisation of work and communication - both contain elements of attitudinal issues and lack of skills. These topics are explored below.

## Organisation of Work

The organisation of work influences which groups hold control and power over which other groups or individuals. Hutchins (1995) explains that information gathering tasks are performed by those of low rank while decision making tasks are performed by those of high rank; if you control the goal, you have a higher status. Therefore, social hierarchy affects, or is affected by, the roles that groups perform. This is reinforced in the veterinary field by the SNA results whereby veterinary surgeons are most often sought for, and brokers of, resources – especially for the higher order interactions such as problem solving, while equally relying on other professions for information. However, as Chapter One suggested, the traditional hierarchy and roles of professions and occupations are changing. As the organisation of work, or the division of labour, evolves, relationships may change due to moving distributions of power and control. This section will consider the



changes in organisation of work throughout history and the challenges which this causes for IPW/L.

### Status and Identity Theory

Chapters One and Two identified the difference in status between the long established veterinary surgeon profession and the new veterinary nurse profession. The SNA results indicate that this is a notion which is yet to be relinquished. The reciprocity scores suggest a dominant position of veterinary surgeons over veterinary nurses, and other professions, for the four main interaction types. Social identity theory can help to understand professional identity and group actions (Burford, 2012). Individuals are self-categorised into an in-group, with the remaining individuals forming an out-group. This identity as part of a group can be positive with regard to reduced stress, but can also lead to areas for potential conflict, stereotyping and hierarchy. Novice professionals have been seen to replicate and exaggerate the negative oversimplification of the motives of other professions as, it is suggested, a way of being accepted into their profession (Lingard, Reznick, DeVito, & Espin, 2002). This lack of understanding of motivations and the culture of the other professions can lead to less ability to communicate and a proliferation of stereotypical views (Lingard et al., 2002). Veterinary surgeons are likely to have a stronger identity and self-perception than veterinary nurses. Their identity is similar to physicians who are used to holding leadership roles and may be more focused on novel diagnoses rather than areas such as palliative care (Hall, 2005). With veterinary nurses as a recognised profession (Chapter One), it may be expected that this hierarchy of power may diminish, and that an identity of a veterinary team rather than separate occupations may increase. However, the habitual barriers to IPW may restrict the advancement of horizontal team structures, as seen through the higher densities of intraprofessional interactions, especially for veterinary surgeons, than interprofessional ties. This is not to say that hierarchies cannot be beneficial in many circumstances. A hierarchy has benefits in terms of providing a stable structure for information to flow down easily, therefore benefitting the management of the team. Hierarchies should however be based on the right factors, rather than simply professional status.

### Evolving Roles

Along with an increasing status, veterinary nurses have experienced a change in roles over the years, which subsequently impacts on veterinary surgeons. Further to

this is the rise of other animal related professions as discussed at the end of Chapter One. These new occupations also have roles which once upon a time were the remit of veterinary surgeons. This is most clearly seen through the influence of administrators in the SNA results. Several key individuals were administrators and they were shown as integral for information transfer between branches of a practice. A loss of autonomy for such a prestigious profession as veterinary surgeons may not be welcomed, either towards these scientific-laymen managers, for example, in decisions over drug choice for reasons of cost as opposed to veterinary knowledge or veterinary nurses in the decisions of individual case treatment. The ever important jostle for jurisdiction also suggests that it is feasible that veterinary surgeons would be resistant towards veterinary nurses taking over some of their roles and duties, and appearing to encroach on their area of expertise (Xyrichis & Lowton, 2008). As qualified veterinary nurses gain an increasing monopoly on tasks over lay individuals, and establish a greater confidence in their status through professionalisation, veterinary surgeons may be concerned that 'mini-vets' are being created who do not have a position in the marketplace due to their up-skilling including veterinary type roles (Badger & Partridge, 2010). It is not only the traditionally dominant professions who may seem to lose out at the onset of new regulations. Traditionally lower status occupations may feel oppressed if their legal range of roles suddenly appears to decrease and they must give up their tasks to other professions. For example, within recent history, exemptions to the Veterinary Surgeons Act allowed veterinary nurses (as non-veterinary qualified individuals), to perform castrations on cats under six months of age. Since The Veterinary Surgeons Act 1966 (Schedule Three Amendment) Order 1988, this has become solely the duty of veterinary surgeons. However, not all veterinary nurses ended this practice in 1988. Potential reasons include feelings of oppression or disagreement, or a lack of knowledge and understanding of the changing laws. A change in laws and subsequent working habits clearly requires mutual respect between the professions involved regarding each other's abilities. It is important also that the roles of each remain clear, both where they are separate and where they may overlap, as blurring and confusion may cause insecurity (Baxter & Brumfitt, 2008). Richardson (1999) suggests that while handing over routine roles to another group may be considered a threat, the ability to adapt to contexts is a primary characteristic of professional practice. It is the changing of veterinary nurse regulation and the increase in other veterinary occupations which makes the investigation of the adaptations of professions regarding their jostles for jurisdiction and IPW/L in general so interesting at this time.

## Power

Power is not exclusively linked to hierarchical status and the organisation of work and can take a variety of forms. Within a hospital operating theatre (a common location for teamwork research), it has been shown that power can take the form of authority (legitimate, alleged/imagined and competent) and manipulation (Collin, Sintonen, Paloniemi, & Auvinen, 2011). The examples given within this article portray both surgeons and nurses. One nursing example is that of 'trickster manipulation' whereby the tables are turned on traditional superiors, in this case by hiding a scalpel in order to slow the surgeon down (Collin et al., 2011). Using subtle or indirect demands (for example through a joke) can be seen as a way to avoid displays of power which could upset relationships and create tension (Lingard, Reznick, Espin, Regehr, & DeVito, 2002). Medicine also shows an area of tension between general practitioners and managers (Barr et al., 2005). It is anticipated that interprofessional power struggles between clinical groups (veterinary surgeons and veterinary nurses) and non-clinical groups (receptionists, practice manager, accounts staff) will provide an especially interesting area for research in this thesis.

A second challenge to IPW/L, which is clearly related to the issues of organisation of work, hierarchy and power, is communication. This is explored below.

## Communication

Within veterinary and veterinary nurse training, communication skills are becoming a widely accepted and integral part of the curriculum. Communication skills have been identified as the most important attribute of recent graduate veterinary surgeons (Rhind et al., 2011). However, this training in communication is largely focussed on the profession and the client and very little attention has been paid to interprofessional communication in the veterinary field. As identified in Chapter Two, interprofessional communication has been frequently quoted as being a reason for error in healthcare. Interdisciplinary communication has in fact been questioned as an 'uncharted source of medical error' (Alvarez & Coiera, 2006) and therefore requires research attention.

## Summary of SNA Communication Outcomes

The SNA results provide a good overview of veterinary communication. The questionnaire asked individuals to describe their interactions with other team members in terms of receiving information, asking for advice and problem solving (and less applicable to communication, being influenced by another). As predicted, the numbers of connections were higher for the information and advice interactions and lower for the problem solving and influence interactions. This suggests that communications with different purposes occur between different individuals. There tends to be between two and five individuals who could be considered 'key' individuals within each of the networks. Key individuals are defined as those with whom multiple others seek connections and who frequently sit on the information flow between any other two individuals. The identified individuals include members from all professional groups, but this varies with the type of interaction. For information receiving, many administrative individuals are key, whereas for the higher order interactions, veterinary surgeons tend to be key. Generally speaking, the information receiving interaction is often interprofessional, while the higher order interactions are more intraprofessional. However professional differences exist, demonstrating more intraprofessional ties for veterinary surgeons and more interprofessional ties initiated by veterinary nurses. Reciprocation scores suggest that in many instances there is a vertical hierarchical structure, although this was not always the case, as the information interaction and some practices demonstrate an almost horizontal structure, or even a reversed traditional hierarchy. Factors such as physical proximity of branches and social interactions were also shown in Chapter Four to influence the communication within veterinary practices. It is important that this quantitative mapping of the phenomenon is considered in much more depth to gain insight into the reasons for these patterns of behaviour. This will be achieved through the embedded case studies in the following chapters, but first a consideration of the interprofessional communication literature will be of use.

## Speaking Up

As communication is such a fundamental part of working within teams, there are many aspects which can be challenging and being unable to overcome these challenges may lead to adverse effects. One aspect of poor communication that can lead to error is the concept of 'salute and stay mute', a phrase coined by Patterson et al. (2001) to describe the phenomenon of traditionally lower status individuals

choosing to remain silent rather than speaking up and challenging a potentially erroneous decision made by their higher status colleagues. There are several reasons why individuals may choose to risk harm to patients over speaking up. They include being concerned about the accuracy of their knowledge, the possibility of affecting the relationship with their superior, or perhaps being fearful of repercussions (Kobayashi et al., 2006). This is especially interesting given that members of lower status occupations can know more about a certain situation than their higher status colleagues. This is the case within military ship navigation whereby enlisted men (who are by default of lower status) are often more experienced than their supervisors, who gain a higher status through being an officer (Hutchins, 1995). Within the veterinary field it is clear that a newly graduated veterinary surgeon will still be finding their feet in terms of general knowledge and skills, and especially context/practice dependent knowledge, in comparison to a veterinary nurse who has been qualified and employed in the practice for several years.

From my own personal experience of the pilot study 'veterinary interprofessional education resources (viPER)' conducted at the RVC, it was clear during an emergency role play scenario that veterinary nursing students who were in their first or second year of a three or four year program, but who had had experience at university and in practice of this scenario, were reluctant to instruct their veterinary partner, who tended to be in the third year of their five year program, but who were much less sure of how to progress in this situation. This concept of assuming another's proficiency based on their perceived status can therefore develop from the period of education and is likely to be heightened through their working lives in the traditional hierarchical culture. With increasing shared responsibility, this thesis questions if veterinary nurses will 'speak up' to their veterinary colleagues and will be willing to take leadership roles in appropriate contexts. The importance of this phenomenon was reiterated in a review of educational programmes aimed at improving non-technical skills by Gordon et al. (2012) who indicated that one of the major themes in the content of the interventions was 'teamworking and leadership', specifically team decision making and "empowering participants to challenge appropriately to enhance safety". Several papers are now seeking to address this issue, for example Pian-Smith et al. (2009) advocate the "two-challenge rule" to instruct medical residents to speak out through the use of simulation training. Edmondson (2003) describes the importance of an environment within the operating room which is conducive to change, with leaders who facilitate a reduction of the

view of status as a barrier to communication. Promoting assertiveness has been identified as a challenge in status determined teams such as the military and medicine (Burke et al., 2004). It is likely that overt support from partners within a practice would be required for veterinary nurses to undertake an authoritative stance.

### Excessive Communication

It is possible that too much communication, seen in sociograms as highly dense networks, can be as much of a problem as too little communication. If the communication takes place within an environment that does not facilitate critical thinking and instead promotes agreement and acceptance, then views will spread easily and the whole group will agree on one outcome, without individuals having a chance to form their own opinions. This is dangerous given that the dominant answer is not necessarily the correct answer in the situation. There is therefore a trade-off between allowing a diversity of interpretation from participants and the need to get a single interpretation to allow an answer to be reached or a decision to be made (Hutchins, 1995). Linking organisation of work and communication, the working environment will influence the informal learning of any participant, especially students or newly qualified individuals, through the existence of role models and the hidden curriculum. This can be challenging and it has been said that the environments “inadvertently conspire against individuals to develop their own ideas purposefully” (Richardson, 1999b p469). Simply increasing communication is not the answer to improving team or organisational work. Instead improving the types of collaboration and connections is cited as being important (Cross & Parker, 2004). Clearly what is being said and how, i.e. the content and context of the communication, is also important. As Chapter Two acknowledged, the different professional discourses may contribute to challenges in communication.

### Restrictions on Information Flow

Information flow can also be halted purposefully. It can be withheld due to reasons of confidentiality, perceived unimportance of information for another profession (cognitive blindness), limited time and stress (Barr et al., 2005). This is clearly a barrier to the free flow of relevant information which is critical in creating a ‘pool of shared meaning’ (Patterson et al., 2001). This is especially a problem if a key individual with a high betweenness centrality exerts their power to limit the resource flow between sub-groups, and thus creates a bottleneck, whether through choice or

due to restrictions of time. Having shared understanding allows decisions to be made which may be better than a choice any one single individual could have made and is therefore vital for successful communication and decision making. This interprofessional rather than multiprofessional nature allows a team of experts to become an expert team (Collin et al., 2010). As Cole and Perides (1995) describe in their consideration of managing organisations, fundamental to the success of the organisation therefore is the efficient flow of information through the organisation, in terms of quality, quantity, nature and timeliness. Key individuals are therefore a phenomenon which should be researched. Identifying key individuals, as was possible in the previous chapter through SNA, is the first step. Secondly they should be investigated further in order to assess their workload and stress, for example, which may lead to the propensity for bottlenecking information.

### Tension and Stress

Much interprofessional communication will occur in times of particular stress, such as an operation. Topics of communication often relate to contentious and challenging areas such as time, resources, roles and safety (Lingard et al., 2002). Tensions may arise and these will have implications for any novices who are involved in the interaction and who may either mimic this behaviour or be seen to withdraw from the situation. To stop bad habits and stereotypical views of professions from being passed on, it is important to consider what and how we are educating the professions and occupations involved (Lingard et al., 2002). It is also clearly important that current members of the professions continuously endeavour to improve their interprofessional and teamwork behaviour in order to create environments conducive to good interprofessional working, and all the benefits that it can produce.

Now the challenges of IPW/L have been explored it is clear to see that achieving efficient and effective IPW/L is not a simple process. The SNA results in the previous chapter have also demonstrated the complexity of IPW/L within veterinary practices. IPW/L is however a fundamental aspect of the modern day veterinary team, essential to its ability to deliver services.

In the following section a depiction of the changes in understanding of working and learning in practice, especially IPW/L will be considered. Research to aid the understanding of how different veterinary groups work and learn together has been suggested by Scholz et al. (2013) and is the aim of this thesis.

## Interprofessional Workplace Learning and Working

As described above, IPW/L is a culturally challenging process for members of the veterinary community and is not facilitated through the formal undergraduate education of veterinary groups in the UK, which remains separate. Once in practice however, members of the veterinary team must increasingly work and learn alongside members of other professions and occupations as suggested in the previous chapters of this thesis. The way that this occurs is very under-researched in the current field.

There has been, however, substantial general research into workplace learning theories. This section does not attempt to cover the documented range of theories. Instead it will focus on a select number of theories which have been suggested to relate to interprofessional learning, especially within the workplace. Learning is considered here as being framed within social theories. Through the previous discussions of considering the influence of one profession on another's activities (Chapter Two), the use of social network analysis (Chapter Four) and the forthcoming discussion of holistic case studies (Chapters Six to Eight), I hope to convey this notion of my interest regarding individuals acting within a network in a context, and being influenced by and influencing the network and context. The approach is therefore clearly consistent with the argument about social constructivism which underpinned my use of SNA and which I will continue to use in this chapter to analyse knowledge and learning as a socially and culturally created process. This focus on the team is not to claim that individual's lived experiences of IPW/L are not important. Indeed, as Engeström (2008) describes, it is important to consider the interlinked 'macro history' of teams (professionalisation), as well as the 'micro history' of teams (the local developments within a team). Workplace learning in the literature fits with this framework, and has been suggested as an intertwining of individual and social domain (Collin et al., 2011).

The theories chosen to be represented here all offer insights into assessing veterinary IPW/L in practice; however in isolation they are insufficient for the current research. Situated Learning, Legitimate Peripheral Participation and Communities of Practice offer a comprehension of progression from novice to expert of an individual through learning by doing, typically within a single profession. Billet's workplace learning research adds the acknowledgement of both the workplace and the individual affecting what is learnt. A consideration of boundary crossing is chosen as



it introduces the factor of the interprofessional nature of work and the opportunities and challenges that this brings. The concept of the importance of the team is extended by the inclusion of distributed cognition. Distributed cognition is especially helpful in the current context as it can be used to conceptualise learning across hierarchies, which is clearly relevant to the veterinary practice team. Knotworking is a useful adjunct to understand the nature of flexible teams which may ebb and flow over time. This chapter argues that insights from each of these theories are best utilised in the current research through the framework of activity systems and Cultural-Historical Activity Theory (CHAT). As the previous chapters demonstrate, I consider the culture and history of the veterinary professions to be highly influential in the working and learning that occurs today. Activity systems also offer a clear structure to consider the interlinked elements of the network such as division of labour, rules and instruments. CHAT does not however offer a suitable method for researching phenomena in context. Therefore, akin to other authors, methods using CHAT as a theoretical framework will be developed.

## **Situated Learning, Legitimate Peripheral Participation and Communities of Practice**

I argue that Lave and Wenger's (1991) theory of 'situated learning' and 'legitimate peripheral participation' and Wenger's (1998) extended discussion of 'communities of practice' offer very interesting ways to conceptualise learning in workplaces. This is in accordance with Hammick et al (2009)'s Guide to 'Learning in interprofessional teams' within the healthcare domain.

### **Background**

The pre-occupation of both Lave and Wenger in their work together and apart is identifying the learning process of individuals within a group context, i.e. how all individuals learn to do things. They built this process on a critique of the view of cognitivism and the notion of internalisation of knowledge and the existence of a divide between human minds and the world. They instead consider the mediation of culture and history in learning which they therefore claim is a social participatory practice. Cognitivism is a very different conception of learning from the one that underpins all the writers I have chosen to discuss as relevant to interprofessional working and learning. There is not space in this chapter to explain why this is the

case in detail (please see for example Lave, 1988), so I have restricted this point to one major conclusion: cognitivism assumes the separation of learning and working, with development in isolation, whereas I assume a relationship between them. It is important to keep in mind throughout this thesis that I consider there to be a strong link between working and learning within a team, whereby learning naturally follows when members of different professions (who have different knowledge and skill bases) work together for a mutual goal.

These theories centre on learning through doing, while taking part in work, and therefore the context of the work is inseparable from what is learned. They place the learner at the centre of consideration as opposed to the teacher, and therefore frequently refer to the identity of the individuals. However this identity is gauged as part of the society, as the nature of an individual and society are interlinked.

Situated learning arose from consideration of apprenticeship and involves the concept that learning involves the whole person, their activities with others and the world, and the world itself, all of which mutually constitute each other (Lave & Wenger, 1991). Situated learning has been considered in the interprofessional medical education world as involving the tacit, unexplainable, knowledge of experts and the existence of role models and subsequently the hidden curriculum (Hammick et al., 2009). Lave and Wenger extended the situated learning concept towards 'legitimate peripheral participation' (Lave & Wenger, 1991). This model is again based on apprenticeship and specifically involves members moving from peripheral practice to full practice through available learning, which may take many forms, but is often provided by the existence of a master. As indicated, it concerns the whole person in their world, and focuses on learning through participation, not teaching, and on the change in the learner including in their identity. This in theory could be an individual new to a profession or an individual new to a certain context.

While communities of practice were cited in the earlier book, Wenger produced a more in-depth view in a subsequent account (Wenger, 1998). Wenger's concept of communities of practice includes explicit aspects such as language, tools and roles as well as implicit aspects such as rules of thumb and shared world views. Learning is related as a change in who you are, how you participate, belong and negotiate meaning. It requires an experience of meaning with access to competence, therefore involves participation and reification. Hammick's view of learning in interprofessional medical teams suggests that communities of practice involve a purposeful exchange of knowledge regarding the shared role (a specific activity) of

the community to which the individuals belong (Hammick et al., 2009). It highlights the social or collective aspect of learning (Fuller & Unwin, 2002) through teachers as facilitators engaging with learners (Scholz et al., 2013). The community therefore creates the circumstances that enable a novice, or potentially a new member of a group, to participate and learn.

### Individuals within a Community

Wenger describes the outcome of individual learning on the community as a refinement of practice and assuring the next generation of membership (Wenger, 1998). Despite this duality of social and individual, situated learning, legitimate peripheral participation and communities of practice tend to focus on the learning of an individual within a team. In this thesis it is hypothesised that the team or network will affect an individual, and just as importantly, any individual can influence the team's knowledge. Rather than focussing on one individual, this research considers the interactions between individuals and the collective whole. The results of the SNA demonstrated that there are identifiable key people who act as gatekeepers to and sources of information, knowledge or advice while there are other individuals who remain on the periphery of the network. It is the learning and working of all individuals who together make up the network which is the focus of the current thesis.

### Interprofessional Considerations

Legitimate peripheral participation can imply that an individual progresses from a peripheral location towards a centre, as they move from a novice who carries out simple tasks with low risk towards an expert in the professional group who is responsible for complicated high risk tasks. Further, that these new individuals will replace the 'old-timers' (Lave & Wenger, 1991). It is obvious however that veterinary nurses do not desire to become veterinary surgeons, and vice versa, and they will not replace each other. Therefore, crucially for this study, the interprofessional nature of the community of practice is another element which requires detailed consideration. Learning takes place between professions, but without the view of becoming an expert member of a specific group, rather an expert in a specific and shared task. As Edwards and Kinti (2010) explain in their description of negotiated expertise, different professions are not trying to do each other's work, or understand all their professional esoteric knowledge, they are instead attempting to work in the most effective way to best utilise the expertise that all groups offer. The community

of practice theory therefore more succinctly describes the dynamics of working in the same community rather than across communities.

### Links between the Learner and the Environment

In moving on from Lave and Wenger's work, I have chosen to include a brief account of work by Stephen Billett. I was lucky enough to hear Stephen Billett speak at a conference recently (Billett, 2014) regarding mimetic learning at work. His descriptions of apprenticeship as 'stealing knowledge' (taking it, not being taught) and mimesis as not just copying, but engaging in strategic understanding, struck me. Further, his identification that there is interdependence between society and personal factors is interesting in light of the current thesis. In this thesis I have maintained the importance of culture and history in investigating modern day veterinary working and learning in practice. Stephen Billett's work (Billett, 2002) is especially useful in extending the view of learning within a context through the consideration of the culture and history of working and learning in practice. Though not interprofessional in nature, this work, as I've indicated, also deepens the appreciation of the links between the learner and their environment and how these two factors affect each other, which relates to the position of individuals within the SNA sociograms and their lived experience of IPW/L.

Billett described three workplace practice planes: everyday participation, guided learning for work and guided learning for transfer of knowledge to other situations. In accordance with the current research, Billett explains the dual and reciprocal nature of these types of workplace learning whereby the workplace affects what the individual learns, but the individual affects what they get out of the learning. Access to learning is vital, but is not distributed equally, and instead varies depending on aspects such as hierarchy, cliques and cultural practices; those whose role is less valued, may experience less opportunities for learning. It is possible to see this pattern in the previous SNA sociograms whereby individuals in the centre of the network, and who link separate sub-groups, typically veterinary surgeons and administrators, have many opportunities for learning through their many links, while those on the periphery have less. The individual's agency is affected by their personal history. They will show commitment to participation when their interests align with the social values of the workplace. This work enhances the notion of the network affecting the individual and the individual affecting what they learn, however it does not go on to consider the collective effects on the team. In addition to this,

while Billett does not specifically state that this learning can only be intraprofessional, he does not actively highlight any issues of interprofessional learning. Figure 8 is adapted from my supervisor's depiction of work by Stephen Billett (2002) and questions the nature of interprofessional workplace learning. The remainder of this thesis aims to fill in the missing information.

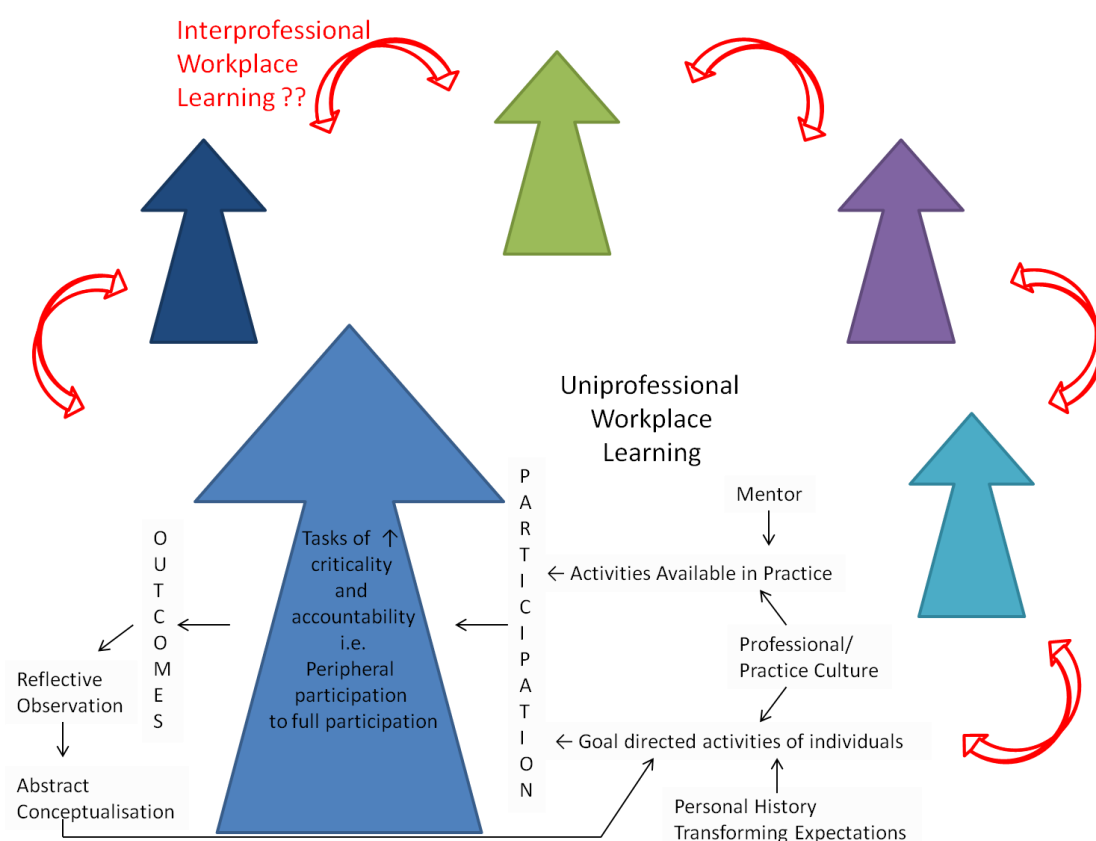


Figure 8. Uniprofessional and interprofessional workplace learning.  
Adapted from May based on Billett (2002)

## Boundary Crossing

### An Opportunity and Challenge for Learning

I have already argued in the previous chapter that there are several potential boundaries within veterinary practices which can cause a reduction in resource flow. Boundaries can be considered as occurring between practices, or between

branches of one practice, between professions or between groups of professions/occupations. Boundary crossing theories promote the view that each boundary should be used as an opportunity for learning; especially important to this thesis is interprofessional learning and working. A working sense of the tacit or esoteric knowledge of other occupations is necessary in order to best utilise the skills of the whole team to achieve common goals (Guile, 2011a). This includes the knowledge of each other's roles and responsibilities as highlighted earlier and in the previous chapter. The SNA results from Chapter Four suggest that interprofessional boundaries are an area for information exchange as evidenced by the very similar overall densities of interprofessional and intraprofessional connections for the interaction receiving information. The other three interactions do suggest that uniprofessional connections are more likely, however interprofessional ties do exist. It is not possible from the SNA results to understand the level of recognition of each other's roles, or the degree of satisfaction at work that the professions are experiencing. These aspects require qualitative study and are therefore explored in the embedded case studies in the following chapters. Incidentally, the SNA results showed very distinct boundaries between branches of practices due to lack of physical proximity. These boundaries are not often utilised as areas for learning and instead seemed to divide the practice into separate entities, relying on a few key people (boundary spanners) to maintain any semblance of a whole practice network.

### Interprofessional Boundary Objects and Boundary Crossing

Boundary crossing research often focuses on interprofessional issues. There is extensive and ongoing literature concerning boundaries, boundary objects and boundary crossing as opportunities for learning which is useful for the in-depth consideration of these 'key people' within the embedded case studies, reported in Chapter Seven. Star and Griesemer (1989) wrote the ground-breaking article describing boundaries. They utilise an 'institutional ecology' standpoint, which treats the whole network and its activities as the unit of analysis and considers the flow of ideas through this network. This clearly relates to the philosophy of this thesis which is explored in this chapter, the previous social network chapter and the following chapter describing the case study methods. The authors introduce a new concept, 'boundary objects' or artefacts. These included maps and specimens, within the authors' specific context of a zoology museum with two key individuals; the founder who was an amateur collector and the first director who was an established

scientist. Boundary objects aid communication by bridging the understanding of two or more social groups while retaining their own specific meaning for each of the groups. These objects cross the boundary through their use by boundary crossing individuals (brokers) who move across different worlds/sites (Akkerman & Bakker, 2011). A challenge of boundary crossing, especially relevant to interprofessional learning involves individuals using artefacts which are actually inappropriate for boundary crossing due to their lack of universal relevance and unclear nature to one or more groups. This action allows individuals to maintain their status, demonstrate their abstract knowledge (Bechky, 2003) and shows the potential for conflict at boundaries. This view of boundary crossing as a potential area for control relates to the SNA theories concerning the power and control of information brokers as detailed in Chapter Four. The embedded case studies allowed boundary work to be observed and analysed.

Boundaries are however becoming accepted as areas with a great potential for learning rather than as detrimental to learning. Therefore rather than learning in isolated groups and becoming experts in one domain, individuals who are able to cross boundaries expand their range of potential learning opportunities. Complete agreement need not be reached, and boundaries are not removed through this process of learning. Instead it is the very difference and diversity within the social worlds which affords the benefits and purpose of boundary crossing (Akkerman & Bakker, 2011). It has been suggested that it is vital that the crossing is reciprocal in nature, in terms of information exchange and flow going both ways, in order for the crossing to be successful (Kerosuo & Engestrom, 2003). Boundary crossing's value of diversity and reoccurring nature differentiate itself from the notion of 'transfer' whereby differences should be overcome within a typically one-time situation, such as moving from learning at school to applying knowledge in work (Akkerman & Bakker, 2011).

### Marginal People

As has been explored in Chapters One and Two, veterinary surgeons and veterinary nurses can be the owner of the practice, or the designated 'head' of the team. They therefore must work across the clinical and non-clinical divide. Veterinary nurses also often take on reception duties and therefore may be equally divided between the receptionist and veterinary nurse worlds. Administrators and receptionists belong to a more recent world in the veterinary field, often being

neither veterinary surgeons nor veterinary nurses. The SNA results demonstrated that appointed leaders (owners and head nurses) tended to appear more frequently in the list of key individuals. Administrators, belonging to this new world, were frequently boundary spanners, linking two different sub-groups. These results align with the importance of marginal people as explored in Star and Griesemer (1989)'s original text. Marginal people are defined as individuals who belong to two or more social (including professional) worlds. Strategies documented to resolve this dual existence include denying one world, oscillating between worlds and forming a new, in-between, world (Star & Greisemer, 1989). The SNA results do not demonstrate the strategies used by the key marginal people in the network. While marginal people may experience blurring and confusion in their own identity these individuals may be best placed to encourage and facilitate learning across boundaries as evident in the SNA results. The embedded case studies in the following chapters look more closely at why it is that these specific individuals are so important.

## Summary

Boundary crossing is therefore a very useful means to consider interprofessional interactions. It is relevant to the ethos of this thesis as it describes its unit of analysis as the whole enterprise with a focus on the “flow of objects and concept through the network of participating allies and social worlds” (Star & Greisemer, 1989 p389). It also acknowledges the influence of specific individuals, for example the founder and director of the zoology museum. However in its original use, it tended to focus on times of change and on the use of boundary objects. It is possible to take this further to day-to-day working and to include normal working tasks such as information transfer. One paper has achieved this through explicitly exploring knowledge transfer within healthcare, and they also utilised SNA.

Currie and White (2012) investigated internal knowledge brokering, which is the day-to-day transfer of knowledge so that it is in the correct hands, and is affected by aspects such as power or hierarchy. At the individual level there are several types of brokerage roles described by Currie and White (2012): liaison, representative, gatekeeper, coordinator and consultant, depending on whether the knowledge comes from outside the group, who appoints the broker and group membership of the broker. While peer-to-peer knowledge brokering is suggested to be effective and easier, it is possible to transcend power and group challenges. Clinical knowledge brokering remained largely hierarchical, but other knowledge was not necessarily,



and certain non-clinical individuals provided excellent brokering roles. The SNA results of the current thesis supported these findings. There were high levels of interprofessional behaviour and the inclusion of administrators as brokering individuals (or key individuals in my terms) for the information interactions. The problem solving and influence interactions on the other hand were more intraprofessional.

## Distributed Cognition

With successful boundary crossing and the subsequent flow of relevant information, distributed cognition (or team cognition (e.g. Salas, Rosen, Burke, Nicholson, & Howse, 2007) can be seen as a result. This notion of distributed cognition is portrayed neatly in Edwin Hutchins' book 'Cognition in the Wild' (Hutchins, 1995) where he studies a military navy ship's navigation team in action. In line with Hutchins, this thesis focusses on the learning of the team as opposed to individuals. Hutchins, like Lave, is a cultural anthropologist who has criticised cognitivism, though allowing the concept of internalisation to be considered as a feature of participation. While it can be natural and correct to consider the individual and internalisation when thinking about learning, it should be born in mind that this thesis evaluates the team or network, not specifically any one individual. Hutchins also maintains that the cognitive properties of a group performing a specific task may be different from the properties of any one individual in the team. Each individual member of the network will learn and adapt their knowledge for their specific part of the task in hand, and therefore if all members are considered, the complete task is different from any one individual's. There is a distributed cognition that allows a team to produce results that they could never do alone. Therefore, the unit of analysis for Hutchins was the navigational team, not specific individuals, and he believes the division between individuals and context, or inside and outside an individual should be softened. He says "in watching people thinking in the wild, we may be learning more about their environment for thinking than what is inside them" (Hutchins, 1995 p169).

## Evolving Roles

While Hutchins does examine the relationships between enlisted men and officers, and between the different professions/groups within each divide, he does not

investigate the contested nature of roles and duties of groups. Instead, the unit he considers is stable, and incredibly fixed, being contained by a ship and maintained by history. In the veterinary field, status and roles are changing. When cognition, or expertise, is distributed, there is the potential for problems; Daniels (2010) describes this as issues of how the expertise or the knowledge is claimed, owned and shared. Consequently the way that distributed cognition within the changing veterinary field is created, maintained and used is increasingly interesting.

### Investigating Individuals' Effects on the Group

Analogous to the current thesis, Hutchins appreciates the uniqueness of the team, which is different from its individual elements. However he does not go beyond consideration of the cognition of individuals and the subsequent distributed cognition. He does not investigate the nature of the individuals and how they can influence the team in varying ways based on characteristics other than just their profession. This is again perhaps due to the regimented nature of his topic of focus. As has been described extensively in previous chapters, the veterinary field is undergoing change, and relationships, unlike in the military, are likely to be in flux. Also, within the current context, as the SNA results identified, there are some individuals who are vitally important in all the aspects of IPW/L studied in this project. What it is about these individuals that allow them to influence the whole team is as yet unclear.

### Knotworking

Engeström offers a critique to the philosophies of situated learning and distributed cognition examined above. One facet of his critique is the conservative nature of the learning to which these theories pertain— the ability to simply maintain the status quo. This is in opposition to Engeström's notion of expansive learning, which provides the necessary theory of how individuals learn to change things within an organisation (Engeström, 2008). Expansive learning is not considered further here as it relates to the developmental work research (DWR) methods, especially the Change Laboratory Method, which are not utilised in this thesis. The embedded case studies in this research instead utilise more meaningful real world observations as opposed to laboratory tests.

## Critique of the Apprenticeship Model

Engeström also criticises the community of practice and legitimate peripheral participation concepts for their original reliance on the apprenticeship model and movement of individuals from the periphery of a community to an identifiable centre, and also maintains that learning does not only take place within identifiably discreet groups (Engeström, 2007). Although in Lave and Wenger's publication on legitimate peripheral participation they state that they do not claim communities of practice have a single core or centre, and maintain apprenticeships are not solely master (core)-apprentice (periphery) relations, they do portray in every example either an expert or master individual or group, and describe the aim of the learner to move towards full participation, and subsequently replacement of their original master. This apprenticeship model misses the interprofessional nature of interactions. It therefore does not align with the anticipated day-to-day interprofessional learning within a veterinary practice consisting of already qualified individuals within a team made up of multiple professions, which do not aim to become one another. Engeström instead promotes the notion of 'knotworking'. Although often applied to project work with no fixed location, as opposed to work within a single business, aspects of knotworking can be applied within the veterinary sector.

## Features of Knotworking

The main features of knotworking are that there is no centre of control and that nothing is fixed or pre-determined. Collaborations take place between individuals from different teams without pre-defined rules and therefore new collaborations, or knots, are continuously formed and unformed. This whole 'unstable knot' (comprising of several nested knots of different forms and types) is the unit of analysis.

## Recognising Experience

Successful knotworking necessitates professionals taking the lead when their expertise is most relevant, but also knowing when to follow as others become leaders in different situations; as Daniels (2004 p193) explains, this "requires participants to have a disposition to recognise and engage with the expertise distributed across rapidly changing work places." To access this expertise, time is necessary for professional groups to learn what other professions do – and why; then flexible knotworking can emerge (Daniels et al., 2007).

## Knotworking in the Veterinary Team

While knotworking tends to pertain to members of different teams coming together, it can be a useful theory to help to understand instances of different professional groups coming to work together for specific tasks. Veterinary practices do have what I termed in Chapter Four 'core' staff, who are employed by the practice. Within this core group are multiple professions and occupations, and there will be a select number of directors, owners, partners and/or managers. These individuals may be at the centre of control for the business, but within day-to-day life, they cannot be involved in every interaction. Many interactions therefore have no clearly identifiable point of control. Sub-teams from the core group will often form briefly, for example during a surgical procedure or a home visit, and at other times interactions will occur on an ad-hoc basis between any members of the practice. With challenges to the traditional hierarchical structure of veterinary practices arising through the professionalisation of nurses and expansion of other occupations, it is unclear if these sub-teams would have a single stable entity as the centre of control, or if this would depend on the context, or not exist at all. More alike to pure knotworking, practices' core team members may also work with external 'extended team' members if required; defined in Chapter Four as occupations who work with, but are not employed by a single practice, such as pet behaviour counsellors. Here, there may exist less traditional power relations and no centre of control. There are therefore several characteristics of potential knots, defined as groups forming for a brief time, with no specific centre, and then unravelling after their specific purpose has been fulfilled, within a veterinary practice.

## Critiques of Knotworking

The knotworking model of work organisation has many features which lend itself to the current thesis. There have however been criticisms of the theory. In a research paper by Bishop et al. (2008) it is suggested that knotworking does not take into account the historical, cultural and social contexts of the workplace. In their study of the British Construction Industry, they propose that the culture of distrust, fundamental tensions between the groups, lack of common goals, type of work, as well as the attitudes of clients and market conditions, makes the environment restrictive for learning and collaboration. They compare this to the original contexts for knotworking of education and healthcare where they report a broad agreement over fundamental goals which allow for knotworking to proceed. The earlier

chapters of this thesis would suggest caution in the claim that all healthcare workers share the same goals and there are barriers to collaborative learning which are not fully explored by the knotworking ideals of overcoming any differences through cooperation and reflection. Within the veterinary field there will be an outcome, one way or the other, for any knotworking situation and the way that this is achieved and the effects afterwards are salient points for the remainder of this thesis. A further point of interest is that knotworking tends to only consider those individuals who are brought together and are able to collaborate together – therefore while there are benefits of knotworking, these are limited to certain members of the overall network. This thesis, as it has been stated, also studies the remainder of the network and may therefore include continuous forming and un-forming of knots within one place as opposed to one knot in one area of project work.

### Space of Reasons and Recontextualisation

Guile (2011) adds that additional concepts, such as inference, space of reasons, restructuring and recontextualisation are important for capturing the complexity of IPW/L. Inference assists with the appreciation that different professions, due to their different culture and history, may interpret verbal commands differently. The space of reasons is somewhat similar to Vygotsky's 'zone of proximal development' being a conceptual space whereby social learning can take place. As Guile (2012, p94) describes:

The challenge for inter-professional teams is to work together to commingle their profession-specific mode of perceiving, knowing and reasoning into a common space of reasons, where members of project teams can duly assess the courses of action their colleagues are recommending.

Guile (2011, p108-109) also states that researchers should use these concepts to explore how:

The resolution of problems requires professionals to enlarge the space of reasons with which they normally operate so they can incorporate insights from other professional fields of expertise.

The zone of proximal development is suggested to mark the transitional period between an individual not being able to carry out a task, or understand a theory, and the individual being able to perform or understand the task on their own. It constitutes a more experienced person supporting an individual in restructuring their thoughts (Guile, 2011b). This can be related to guided learning, and may occur in

addition to participatory learning. Lave and Wenger however criticise Vygotsky's original image of the zone of proximal development, claiming that it makes internalisation of knowledge too central. They encourage the inclusion of 'processes of social transformation' such as the 'structure of the social world' (Lave & Wenger, 1991, p49).

Interprofessional learning can occur with the assistance of restructuring and recontextualisation. Restructuring relates to a change in an individual's thoughts and actions due to an increased appreciation of a concept raised by another (profession). Recontextualisation concerns making esoteric knowledge more explicit through widening the space of reasons and assisting with the restructuring of others (Guile, 2011), which is an important ability for professionals to possess, in order to be able to explain their actions to others.

## **Cultural Historical Activity Theory (CHAT) Framework**

The theories discussed above offer a great deal of foundation on which to research the topic of veterinary interprofessional working and learning, specifically in considering the barriers and challenges of this type of working and how they are overcome to create a successful team. The notions of legitimate peripheral participation and communities of practices are useful for professional development while the concept of boundary crossing brings in the issues surrounding sharing knowledge across professional and physical boundaries. Knotworking adds to this the consideration of temporary sub-teams. As identified, all concepts however display limitations for my context.

The SNA results indicated that there are situations of frequent interprofessional work, especially regarding the simple information receiving interaction. There is however evidence of hierarchies and vertical structures, particularly with regard to a lack of reciprocation between veterinary surgeons and other professions, for the higher order interactions, indicating veterinary dominance. The results also portrayed key individuals, of several professions, who are most involved in information or knowledge transfer, but could not identify the reasons for this, due to the quantitative nature of SNA. Therefore to bring together the interprofessional nature of the work, the day-to-day interactions such as sharing information and the history, culture and social aspects of the context, further consideration and

expansion of another theory is required, and that is cultural-historical activity theory, or CHAT.

## History of CHAT

### Early Beginnings

Despite the term CHAT originating in 1996, the principles are attributed to Lev Vygotsky and his colleague Aleksei Leont'ev, and more recently have been advanced by Yrjö Engeström who we have met already in this chapter. Vygotsky was influential in looking beyond behaviourism and lower mental functions to how cultural development created higher mental functions.

CHAT is a specific form of activity theory which includes concepts of culture and history, along with the enclosed notion of activity systems. CHAT can be described as a developmental theory as it offers a framework for analysing real world data and also designing change (Roth & Lee, 2007). It is useful for a holistic approach towards data collection and analysis. Activity theory regards human behaviour as complex and occurring in relation to its context. Specifically, as the British Educational Research Association (BERA) guide to CHAT states, CHAT assigns an importance to culture and how this has developed through history (Edwards, 2011). Leont'ev was a colleague of Vygotsky and enhanced his concepts through the development of 'the object of activity' which clarifies that the purpose of an activity provides the motivation to carry out the activity. Leont'ev's view was broad and considered the socially agreed motivation for an activity, such as conducting veterinary science to provide safe food sources and healthy pets. It is also possible however to consider the organisational context whereby the subject of consideration is an individual or a group of individuals such as a profession. Therefore the object of activity is the motivation of that person or group to conduct an activity. Importantly, CHAT embeds the idea that purposes and motivation can differ between different individuals, and therefore their actions may also differ regarding the same object. In this thesis this concept is interesting for viewing the different approaches to a case of veterinary surgeons and veterinary nurses based on their attachment to different motivations. This difference in perspective could be considered as detrimental to teamwork; however it could also provide space for new interprofessional knowledge and understanding to develop. It should be noted that it is also highly possible that the object of activity is not realised by the subjects and

can be dynamic (Kallio, 2010); understanding your own and others' objects of activity may assist with interprofessional working. The concept of professional motivation, seen as objects of activity, is very important in this thesis and we will return to it in more detail in Chapter Eight.

### Third Generation – Activity Systems

CHAT developed further, into a third generation, as Engeström added the initiative of activity systems (Edwards, 2011) and expansive learning as already mentioned in this chapter. The activity system model places the object of activity within a wider collective system and considers rules, subjects, instruments, communities, objects and division of labour, and the interactions between them which lead to an outcome (Engeström, 2007). It can be considered a useful tool for the analysis of teams. A team, or network, can consist of multiple activity systems (which may for example represent professions) which interact. The predominantly intraprofessional connections of the higher order interactions in the SNA results suggest that the professions may be part of different activity systems. The results certainly suggest that different branches of one practice are separate activity systems. Even within an activity system, it is important to remember the influence of the individual subjects, which CHAT allows.

Engeström views teams as diverse and inclusive of interprofessional teams; much of his work focusses on the medical team. Akin to the message of the previous chapters in this thesis, he encourages the remembrance of history: “the history of a team is embedded in the history of the organization and often also in the history of the professions involved” (Engestrom, 2008, p83).

He goes on to consider CHAT in the following light:

Such a historical analysis [of the evolution of the activity system] helps the researcher to trace the formation of current tensions through earlier cycles of development (Engestrom, 2008, p27).

And when viewing teams in healthcare, says:

Complex clinical procedures such as demanding surgery have always required collaborative teamwork. However, in such operative medical teams there is usually a very clear vertical command structure and a predetermined division of labour that makes the team more like a commando task force dedicated to a single purpose than a general purpose method of organizing cooperative work and



enhancing horizontal exchange of information across potential boundaries. Ideas and solutions of the latter type are fairly recent in healthcare (Engestrom, 2008, p64).

He believes therefore that:

Medical work needs to be analyzed against the historical background of its local organisation and against the more global history of the medical concepts, procedures and tools employed and accumulated in the local activity (Engestrom, 2008, p207).

This thesis suggests that this is equally relevant to veterinary work.

CHAT is therefore a useful tool for investigating current interprofessional interactions and how they have been formed through the influence of the history of the professions. To make the context of CHAT and activity systems especially clear, I have adapted an activity system diagram (activity triangle) from Engeström which relates to the different professions (Figure 9).

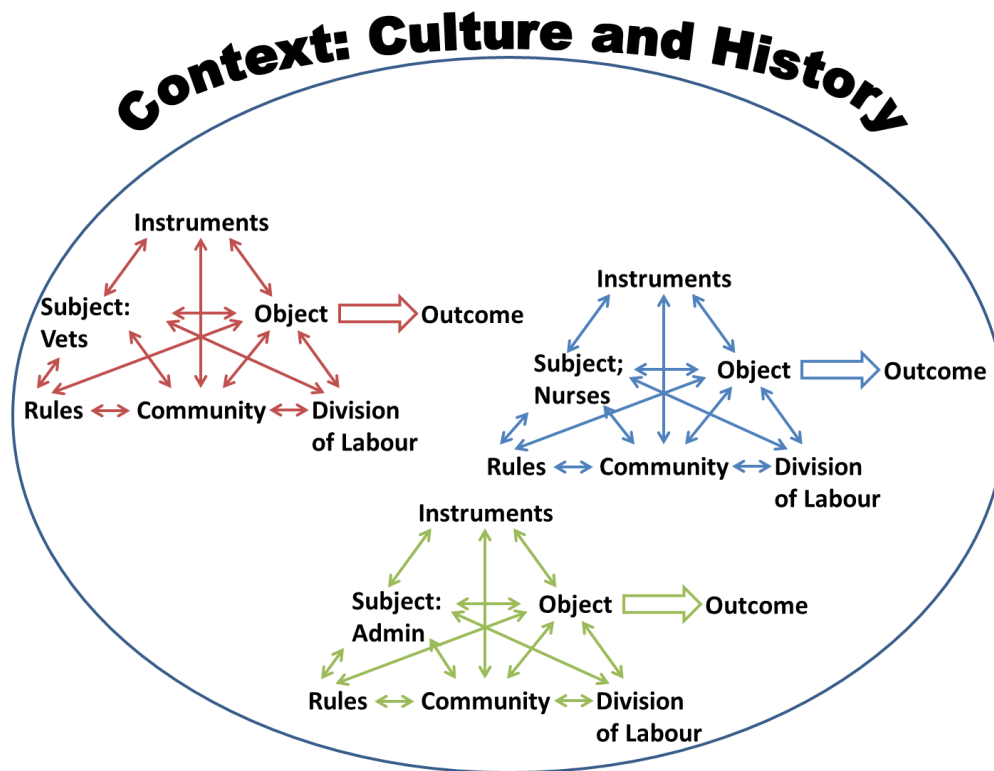


Figure 9. Cultural-Historical Activity Theory adapted from Engeström's Activity System (Engeström, 2008). Highlighting the consideration of subjects as professions which have contrasting activity systems.

CHAT is especially relevant to the current study due the level of importance it assigns to considering the function of individual components with the function of other components and the whole. Also with regard to the requirement of considering multiple dialogues and the issue of power when considering interacting activity systems (Roth & Lee, 2007).

## CHAT Framework

Not all activity theory concepts will be beneficial for the current study. Engeström's focus on changing activities led to the development of resources which have been used, for example, to promote learning across boundaries and agencies within the developmental work research (DWR) method (Daniels, Edwards, Engestrom, Gallagher, & Ludwigsen, 2010). The most famous of these resources is the Change Laboratory Method which aims to support expansive learning. The idea as

described by Virkkunen et al (2010) is that members of a group first identify the need for change in terms of what can be called contradictions. These are problems, which can include the object of activity not being shared between two or more professions and different interpretations of the same object of activity due to different professional values and guidelines (Daniels et al., 2007). The contradictions become turning points which lead to motivation (Daniels, 2004) for plans to be made which rectify the tension between what is happening and what all the members consider should be happening. Utilisation of new tools can create the new model which should promote genuine cooperation, and which is then implemented and positive changes are anticipated to spread through the community. This takes place usually within a series of workshops which are aided by a trained facilitator. The notion that this is always possible is perhaps optimistic.

The learning that takes place within these semi-structured sessions is also likely to be different to the learning that takes place in the real workplace. The current thesis concentrates on the analysis of real life interprofessional interactions. CHAT has also been criticised for its lack of attention towards the fact that knowledge is not a simple tool, but is evolvable and linked to emotions and engagement and therefore CHAT does not consider what knowledge is valued and used (Edwards & Daniels, 2012). The study carried out by Edwards and Daniels (2012) did not, as in the Change Laboratory example above, seek to initiate a change in an institution, but instead focused on revealing the distributed knowledge within children's services. My thesis relates to this notion and will not use CHAT resources of, for example the Change Laboratory, to try to bring about a change in actions. CHAT therefore does not provide a methodology for the current research, though it does provide a theoretical framework to incorporate empirical insights. Expansive learning, activity theory and the ethos of CHAT are still pertinent to exploring learning within this research however, as the phenomenon of interprofessional working and learning is changing all by itself at the current time. The framework of CHAT in terms of assessing components of collective activity (community, rules and division of labour), individual dimensions (different professions and individuals as subjects with subsequently different objects and motivations) as well as interactional dimensions (mediating artefacts), will still be utilised in assessing the teamwork within modern day veterinary practice teams. It will also be expanded upon. Daniels (2011) suggests that the concepts of power (classification at the structural level) and control (framing at the interactional level) identified by Bernstein in 2000 extend Engeström's notions of rules and division of labour in a way that helps to explain

how communication is shaped across boundaries. Power and classification relate to the maintenance of boundaries and the subsequent specialisation and insulation of professional groups. Control and framing relate to the communicative practices between groups and the linked social relationships. The inclusion of power and control in activity theory allows the consideration of how society affects the interactions between groups and the patterns of communication that they use (Daniels, 2011). This is important for the current study due to the existence of hierarchies between the professions for certain interactions as identified in the SNA. In several practices there was an interprofessional nature for simple information receiving; however for the higher order interactions, connections were primarily intraprofessional or where interprofessional, the reciprocity scores indicated one way knowledge transfer.

## Researching Veterinary IPW/L

CHAT will therefore be used as a foundation and initial framework for the consideration of veterinary IPW/L in this thesis and will be expanded with considerations of power and control. Reframing research questions and approaches to include the broad scope of complexity in medicine through Activity Theory has been previously suggested (Varpio, Hall, Lingard, & Schryer, Catherine, 2008); however it remains a rarity. This study is also novel in its starting point of using SNA to map interactions in the modern day veterinary practice and using the results to guide and help interpret further qualitative research which uses workplace learning theories including CHAT.

The next chapter will introduce the qualitative embedded case studies which form a major part of this thesis. The cases are two of the practices visited for SNA as described in Chapter Four. These case studies incorporate interviews with selected members of the team, observations of interprofessional working and learning and artefacts such as websites, depicting the public face of the team. The embedded case studies aim to investigate the network's perception of their veterinary team as well as the benefits and challenges of IPW/L as introduced earlier in this chapter. As the second half of this chapter explained, there are many learning theories that have relevant aspects to the current study, and an adapted interprofessional and real-life

based version of CHAT will be utilised within the analysis of the cases to examine IPW/L to provide a distinctive lens to view veterinary IPW/L.

## **Chapter Six: Embedded Case Studies**

### **Introduction**

The overarching methodology of this thesis is a case study design as has been described in Chapter Three. The rationale was illustrated, including aspects of researching a modern phenomenon without making changes, answering ‘how’ and ‘why’ research questions and considering the phenomenon through different viewpoints.

Within Chapter Four, the first empirical part of the research (SNA) was described. The results identified trends which produce a map of interprofessional interactions within veterinary practices. The results, however, do not explore how and why these patterns occur. This will be addressed by the second stage of the empirical research, described as embedded case studies. These are case studies of individual practices which use multiple methods to investigate in-depth the phenomenon of IPW/L. The sub-research questions explored through the embedded case studies are: ‘How is interprofessional working and learning facilitated in practice?’ and ‘Why do interprofessional challenges arise, and how could they be resolved?’

In this Chapter the embedded case study methodology will be explored. In the subsequent chapters the sub-research questions will be addressed.

### **The Embedded Case Study Method**

#### **The Cases**

The embedded cases are bound by time (during the research period, 2014) and place (locations where veterinary surgeons work in England). The research includes two embedded studies. Both cases are bound by the working interactions in one location; the core and extended team of a veterinary practice. According to Yin’s definitions (Yin, 2009), the embedded case studies will be descriptive as they attempt to illustrate the phenomenon in its context and aim for a level of typicality. As described by Stake (1995) the purpose of understanding and description is appropriate for qualitative case studies, and therefore multiple qualitative data

sources will be used, including primarily direct observations/shadowing and interviews, but also documents or artefacts. The embedded case studies are part of the larger project design and will be triangulated with the results of the earlier SNA in the ensuing chapters. The precise methodology used to undertake and analyse the embedded case studies is described in more detail below.

## Researcher Status

Prior to describing the cases it is important to formulate a notion of my level of insider/outsider status. The binary notion of insider versus outsider is not helpful, as others have suggested (Hodkinson, 2005). Instead I am, to some degree, an insider researcher. I am a PhD student at a prestigious and well known veterinary university, the Royal Veterinary College. I have also previously worked as a veterinary receptionist. Both of these aspects were explained to the practices upon initial contact regarding the SNA. I also shared the characteristic of (almost) all participants of being an animal lover and pet owner. I therefore have social proximity to, and belong to, the veterinary scene in some senses. This offers benefits in terms of practical issues; access and engaging participation. Further it can expedite trust in me as a researcher and subsequently aid my interpretation of findings (Hodkinson, 2005) (as alluded to again later in this chapter). My successful completion of the SNA with the two practices who became my case study sites must have demonstrated to the practice that I would be an appropriate individual to conduct extended and potentially more invasive research. In some ways, however, I remained an outsider. The sites were not ones that I had previously worked in or attended with my pets. Prior to the SNA study I had never spoken to any individual who worked at the case study sites. Further to this, I am not a veterinary surgeon or veterinary nurse, the two prime professions under study. In the case of the mixed practice I visited I was also clearly an outsider through my urban rather than rural background, which was never more evident than in my discomfort in telling the farm animal practitioners that I am a vegan. A degree of being an outsider could be considered beneficial as it intimated that I would not be biased towards criticising or endorsing any of the professions during their interactions and would therefore have a neutral standpoint, an advantage discussed by Reeves et al. (2015) in the consideration of IPE evaluation. It also meant that there was not an overt power difference between myself and the focus individuals, which may have existed if I had been a veterinary surgeon interviewing a veterinary nurse. Finally, it allowed me

the justification to ask basic questions which may have been deemed unfitting to a clinically qualified individual.

## Choosing the Cases

I chose to research two practices to allow an aspect of comparison while adhering to practical issues such as time. The practices were chosen based on the results of their SNA, their accessibility and purposely to ensure a degree of representativeness of the typical range of practices (full representativeness being impossible with the limited number of cases). Pseudonyms are used to preserve anonymity.

Once a practice had agreed to take part in the study, an information sheet was provided for their staff. It outlined the research plan, reassured staff to act within their normal work responsibilities despite my presence, provided information regarding what to do if they wanted to be excluded and gave my contact details. This sheet can be seen in Appendix 7. No individuals opted out of either site.

I did not offer rewards for participation and owing to the anonymity of their involvement, it is unlikely that clients would be won or lost through my publications. The practices were interested in what feedback I could provide in order for them to better their teamwork. An executive summary of the SNA results and Case Study findings, as well as a very limited number of non-thesis-related feedback suggestions (such as my perception as a client of how calls are answered) were provided to both practices, and were appreciated (example in Appendix 3).

## Introduction to Cedar Vets and Field View Vets

The first practice visited shall be known as Cedar Vets. It was chosen due to its structure being a widely popular model in England. Cedar Vets is a small-animal-only practice consisting of five branches located within urban and semi-urban areas. It is an independent practice run by a number of partners and one senior partner. It has a medium sized staff. My contacts, the HR Manager and Practice Manager, as well as the senior partner, were very supportive of my return after completing the SNA part of the study. The practice has received the Investors in People (IIP) award and is clearly conscious of the wellbeing of its team and satisfaction of its clients and is consequently keen to take part in research.



Field View Vets, the second practice visited, is a mixed practice, treating not only pets, but also farm animals and horses. Field View Vets has four branches within a rural location. It is a member of a large group of practices and is run by 10 directors. It is a large practice with many staff. The HR Manager at Field View Vets was incredibly helpful in liaising with the directors to allow my return. The practice is aiming for IIP status and is currently going through a growth accelerator course. Analogous to Cedar Vets, the practice was as a whole engaged with participating in research.

A comparison of the practices highlighting salient differences which lead to their choice as a case is demonstrated in Table 15.

Table 15. Comparison of the two case study sites

	<b>Cedar Vets</b>	<b>Field View Vets</b>
Animals treated:	Small Animal	Mixed (Small, Farm, Equine)
Location:	Urban	Rural
Size:	Medium <40	Large >70
Branches:	5	4
Status:	Independent	Corporate: Part of a larger group

The practices were interesting as comparisons due to their different work flow. All of Cedar Vets' veterinary surgeons worked across the branches. Field View Vets' veterinary surgeons worked within their species specialisation and occasionally across selected branches. The species specialism was clearly apparent in the sociograms produced by the SNA results for the interactions at Field View Vets. Cedar Vets' veterinary nurses tended to work across branches, as did the Field View Vets nurses (within the small animal branches), although in both cases there were exceptions. Cedar Vets' nurses work on call, like veterinary surgeons, while Field View Vets' nurses alternate on an out-of-hours rota whereby they are on site overnight at one of the branches. Cedar Vets' receptionists work across branches and Field View Vets' receptionists will also work across branches, including specialisations, when new rules are augmented. As will be seen in the following chapters, the work flow patterns influence the character of IPW/L.

## Choosing the Focus Individuals

Prior to visiting the practices a selection of individuals were identified that fulfilled the criteria for becoming a focus individual. The first general observation week at each practice elicited the final choice. The individuals were approached via email. All 12 agreed to take part in the research. Consent forms detailing data storage, anonymisation of results and withdrawal were provided and signed by the participants. An example focus individual consent form can be found in Appendix 7.

The initial criterion for each practice was to include two veterinary surgeons, two veterinary nurses and two administrators. Within each pair, one individual would be centrally located in the SNA sociograms, while the other would be more peripheral. This, it was anticipated, would facilitate the investigation of contrasting lived experiences.

The first week of observations clarified which individual was approached. In one instance a central veterinary surgeon was on holiday during the scheduled shadowing week and could not be included. In another instance one of the identified peripheral veterinary surgeons had already left the practice prior to the commencement of the case study. Where a choice was possible, I shadowed the individual with whom I had spent less time (though I had always met) during the first observation week. This allowed a significant amount of observational time with various members of the team to produce an impression of the overall team culture, as well as on the focus individuals to consider an individual's story.

The focus individuals are as listed in Table 16 and described in detail in the second half of this chapter. Pseudonyms have again been used.

Table 16. Focus individuals from the two case study sites (pseudonyms)

	Cedar Vets	Field View Vets
Director/Partner – Veterinary Surgeon (Core)	George	Paul
Veterinary Surgeon (Peripheral)	Sofia	Jim
Head Veterinary Nurse (Core)	Claire	Amber
Veterinary Nurse (Peripheral)	Jenny	Kimberly
Practice/HR Manager (Core)	Christina	Rebecca
Receptionist (Peripheral)	Samantha	Olivia

## Case study Protocol

The methodological structure of the embedded case studies consisted of three sequential weeks with the additional collection of artefacts throughout the observation period. Through triangulation, these different approaches become complementary, each adding a unique aspect of investigating the phenomenon of veterinary IPW/L. Therefore, although explained separately here, the later analysis of the embedded case studies considers the approaches together.

### Week One - General Field Observation

The first week (Monday to Saturday/Sunday) of each embedded case study consisted of general field observations. I began my first day within the main practice branch and was greeted by my primary point of contact. From that point I was allowed the freedom of the practices' buildings as required. The observations were based on locations. As a starting point at each new branch I would position myself in reception, which predominantly allowed observation of the receptionists and veterinary surgeons. This was the optimum location for interprofessional interactions during consulting periods which tended to run in the morning, for example from 9:00am-11:00am and subsequently from, for example, 3:00-4:30pm and 5:00-6:30pm in the evening. At approximately 11:00am, depending on the availability of veterinary surgeons, operations would begin. At these times it was beneficial to

observe in the 'prep room' and operating theatres to facilitate recording veterinary surgeon and veterinary nurse interactions.

### Recording Field Notes

Through the use of a small laptop/tablet I was able to record field notes. The field notes included my observations of what was occurring, ad libitum speech from participants, comments from participants and my interpretation or thoughts. Notes were taken continuously. As they were written, I coded them simply as an interprofessional or intraprofessional interaction through highlighting. This gave an overview of interactions and aided with the analysis of temporal interactions. The field notes are reported throughout the following chapters through either direct repetition of the notes or adapted text to aid understanding out of context. Where adaptations have been made they will be identified by bold text and square brackets to denote specific edits. Several longer sections of field notes are also utilised as vignettes to transport the reader into the practice setting. The extensiveness of the field notes, and the desire to consider several participants over multiple locations, means that conversational analysis was not an appropriate analysis. Conversational analysis is an expansive topic and it can be challenging and time consuming to follow the rules or principles (Have, 2007). This thesis therefore does not aim to add to, or reflect upon, the debates in conversational analysis and any inclusion of field notes are made in plain English.

In total, 57.75 hours of observations were conducted during week one at Cedar Vets and 49.25 hours at Field View Vets. These 105 hours provided considerable in-depth data, and is in itself significantly greater than the 46 hours spent by Currie and White (2012), although it is acknowledged that their case study had a greater bias towards interviews and their SNA data rather than observations.

### Challenges of Week One

A challenge of location-based observations (as in all static naturalistic observation studies) was subjects of study leaving the vicinity. While this method produced extensive, rich notes, it was quite stunted and did not provide an impression of the flow of teamwork. The advantage of concentrating on everything and everyone was also a challenge in terms of keeping up with the different threads of conversations and actions between individuals. The following week of shadowing complemented the general observations.

## Week Two - Shadowing

Shadowing produced both the observational SNA data and additional case study data. The six focus individuals were shadowed for one day (between Monday-Saturday), consisting of their whole shift. Field notes, as described above, were taken; this time with distinct attention on actions by the focus individual and anyone with whom they were interacting. Coding interactions ordinarily allowed the SNA observational data to be created as described in Chapter Three. Qualitative field notes were maintained and utilised as an adjunct to the general field notes. Shadowing included following focus individuals throughout the practice and on occasion to other branches. The advantage of shadowing is therefore that it provides continuity of observations of teamwork, including patient care.

In total, 41.25 hours of shadowing were conducted at Cedar Vets and 53.25 hours at Field View Vets. The longer time at Field View Vets can be partly attributed to one shift of 12 hours whereby I shadowed a veterinary nurse from 7am to 7pm. The opening hours of the practice were 8am until 6pm and therefore this enabled some out of hours observations, as well as clearly depicting the continuity in teamwork from handover from one night nurse to hand over to the next night nurse. In the third week I interviewed this veterinary nurse during a night shift and made additional out of hours observations. Field View Vets' veterinary nurses work night shifts at the Moor branch which is staffed 24 hours a day. It was therefore easier to observe out of hours working at Field View where nurses are on call than at Cedar Vets.

## Challenges of Week Two

A potential disadvantage of shadowing is that it identifies the individual under observation to their colleagues. This makes maintaining the anonymity of the focus individuals within the practice almost impossible, especially in the smaller Cedar Vets. This was explained to the chosen individuals during initial contact and in consent forms. It did not appear to be a problem. While I never identified my subject, even when it was apparent, the subjects themselves happily told each other that they were the focus of my observations.

Shadowing can feel quite invasive as the focus individual does not have a working moment without me observing them. I initially found it challenging to impose this upon the participants. However every focus individual was supportive of my research and did not show any frustration.

## Passive Participation

The general observation and shadowing weeks both entailed passive or moderate participation. Some questions were asked of the participants, and some participants volunteered information about the practice and their work. On rare occasions I was asked to, for example, help hold a cat or pass something to a participant. Two veterinary surgeons, one from each practice, made a point of talking to me about observer influence within my early days with them. For the vast majority of time, however, I felt as though I was either ignored or included, but without any significant influence on the behaviour of the participants.

The complete set of field notes was repeatedly re-read and clusters of observations around particular themes which emerged, such as errors, were identified.

Observations can be limited in their ability to understand the thoughts and feelings of the participants, or individual's previous experiences. A final week of interviews was therefore included during the planning of the three week protocol. The interviews and observations were interlinked, with each informing the analysis of the other, as described further below (and demonstrated in Appendix 8).

## Week Three - Interviews

I conducted semi-structured interviews with all 12 focus individuals. By this time, I had spent one full day, plus several hours spread over the previous two weeks with the individuals. We therefore had good knowledge of each other and this, it can be anticipated, gave them confidence to speak openly to me. They knew, for example, that I did not belong to any veterinary profession and therefore had no bias in that regard, as depicted earlier in the consideration of being an insider researcher.

The interviews lasted between 22 minutes and 75 minutes (average 42 minutes). One interview, with Amber, was conducted by telephone as she was on holiday during the interview week. All other interviews were conducted face-to-face within a quiet room in the practice. Interviews were audio recorded using a Dictaphone.

## Interview Schedule

The questions were adapted based upon the profession of the participant and the observations I had made of them in the previous weeks (stimulated reflection). For

example, I asked about specific instances of interprofessional working that I had observed, allowing for reflection on real life events. In turn, the themes identified in the interviews were substantiated by returning to the field notes (for example regarding trust and pain relief). The basis of the interview schedule follows:

1. How do you perceive the veterinary team in which you work?
  - a. Branches
  - b. Intraprofessional team
  - c. Interprofessional team
  - d. Ask for examples of good interprofessional working. Can they identify role models of this; what makes these people leaders in this area?
  - e. Are there common conflicts within interprofessional work or barriers that have to be overcome?
2. Show the participant the results from the social network analysis questionnaire; explain
  - a. Do you think these sociograms represent what we've been talking about? Why/why not?
  - b. Could you try and identify yourself in this sociogram?
  - c. Identify them - demonstrate if they are positioned within the centre or the periphery of the network. Ask them how they feel about that result, and if they think their position has changed over the years
3. Changing times of practices, professions/occupations
  - a. Describe historical change
  - b. Have you noticed a change in your work due to the professionalisation of veterinary nurses?
  - c. Have you noticed a change in your work due to the rise of administrators?
  - d. Are there drawbacks to the professionalisation of these groups?
  - e. Do you see the veterinary team changing further in the future?
4. Describe any interactions with individuals outside of your practice with regard to your work

Prior to the case studies, the schedule was reviewed by two veterinary surgeons and two veterinary nurses at the RVC. Their input ensured that the questions were understandable and had the potential to be answered.

## Transcription

I transcribed the interviews. As I had conducted the interview, this eased the process. Transcribing also allows continual consideration of the data. As Lapadat and Lindsay describe:

Analysis takes place and understandings are derived through the process of constructing a transcript by listening and re-listening, viewing and re-viewing (Lapadat & Lindsay, 1999, p82)

The content was the primary purpose of the interviews. They were transcribed therefore in a largely unfocussed way (without context) however embellishments in terms of description of tone (whispering), hesitations (umms and errs) and silences (identified through the number of seconds silence shown in brackets) were included. These additions may facilitate understanding and interpretation of meaning. A multi-disciplinary set of conventions for transcription is still a challenge (Lapadat, 2000), especially one focusing on content rather than conversational analysis. The embellishments are described in relevant quotation presented in the following chapters.

## Thematic Analysis

The interview transcripts were analysed using thematic analysis according to Braun and Clarke (2006)'s six phases of thematic analysis. In following phase one, 'familiarizing yourself with your data', I transcribed the interviews, read them, re-read them and noted down initial ideas, both immediately after the interview and post-transcription. As this is an ethnographic study conducted by myself, an insider researcher, there are significant advantages to me over anyone else in terms of interpreting the data. This beneficial notion of 'insighter'; being both an insider researcher and utilising methods that elicit insider views has been explored elsewhere (Hodkinson, 2005). The fact that I, as a researcher, have "been there", in the field setting during all the observations, as well as undertaking the interviews, and have endeavoured to remain genuine to my first-hand experience in the veterinary practices' world, adds to the authenticity of this research (Golden-Biddle & Locke, 1993).

For this reason, I alone conducted the iterative analysis of the vast supply of case study data (as demonstrated in Appendix 8). This approach is in line with my constructivist epistemology and interpretivist ontology which considers a



construction of knowledge between the researcher and the participants in comparison to the search for 'a truth'. An alternative is to utilise dual coding and inter-rater reliability to establish codes and themes. I have previously used this technique when analysing students' standalone essays on subjects to which I was relatively unfamiliar. However, due to the argument I have made above about my unique and central position in this research (not to mention the feasibility of another person analysing and triangulating all the data), I chose to analyse this data alone.

Phases two to five ('generating initial codes', 'searching for themes', 'reviewing themes' and 'defining and naming themes') (Braun & Clarke, 2006) were conducted simply by highlighting and marking on the transcripts and by summarising themes in Microsoft Excel. I chose not to use Computer Aided Qualitative Data Analysis Software (CAQDAS) such as NVivo. Although I have some experience with NVivo my preference is to stay in the raw data, with the transcripts, and to annotate these. Excel also provides an easy method of moving codes around and creating themes, similar to post it notes which are often used for the same purpose. The derivation of themes was therefore inductive, coming from the raw data. As per phase six, producing the report, I believe that interviews provide a way to give a voice to the participants and therefore direct quotes are used within the analysis chapters. These extracts are chosen to transport the reader into the veterinary practices in which they were related. They are representative and/or stimulating examples of the theme under discussion. Interview quotes are also triangulated with field notes and SNA results to strengthen the analysis.

The source of each quotation will be identified through codes. A participant's name followed by 'I' indicates a direct interview quotation. The term 'field notes' followed by 'O' for observation and 'S' for shadowing is used to identify that the quote is from my notes and which method it was recorded under. The location (practice and or branch) is also provided where appropriate.

## Artefacts

Throughout the case study period and through follow up contact, artefacts were collected. These included photographs of posters, minutes of meetings, official guidebooks, hierarchy charts, website print screens, newsletters and floorplans. At Cedar Vets emails were a frequent mode of contact and I therefore asked them to

provide me with a selection of typical examples. The focus individuals also completed a personality test. The personality test used was based on the 'Big Five' of extraversion, conscientiousness, neuroticism, agreeableness and openness. I was first introduced to the Big Five by the speaker Andreas Rauch at the 7<sup>th</sup> EARLI SIG 14 Learning and Professional Development Conference in Oslo in August 2014. It has been described previously by Andreas as "one of the most frequently used broad-trait taxonomy in organizational behaviour" (Rauch & Frese, 2006). Online tools are available which measure the Big Five. After a comparison of these based on length, results returned and references cited, I chose the following tool: <http://personality-testing.info/tests/BIG5.php>. It is free to complete and results are provided instantly.

Artefacts are used in this thesis to gain a greater appreciation of the way in which teams interact together. Many artefacts, such as a map of farm locations at Field View Vets (Figure 10), colour coded instrument lists, operation lists on white boards and faecal sample test sheets were boundary crossing items, created usually by one profession for the use of another. These are considered in more depth in the following chapter.



Figure 10. Example artefact: Map of farm locations created primarily by receptionists and used to demonstrate to veterinary surgeons where they are due to visit

## Data Trail

The vast amount of data collected through the methods of observations, interviews and artefacts, alongside the complex nature of data triangulation (as introduced in Chapter Three), means that it is important for the reader to see a clear trail from raw data to interpretations and conclusions. Throughout Chapters Seven and Eight the use of vignettes, quotations, field note excerpts and artefacts should aid readers' comprehension of the analysis and its reliability. Prime examples include: pain relief – a significant area of contrasting professional motivations – as demonstrated in Chapter Eight's first vignette and the field note examples on page 255; and errors/blame as demonstrated in Chapter Eight's second vignette, the analysis of error types on page 258-260 and interview quotes on page 261.

For a detailed consideration of the data trail, see Appendix 8 which includes annotated field notes from one day (14 pages), an interview transcript (12 pages) and diary excerpts.

## Participant Checking

Participant checking was utilised to ensure validity of data collection and interpretations. Each transcript was emailed to the focus individual to enable comment and correction. A deadline of three weeks was given and a reminder sent after two weeks. Eight focus individuals replied. The responses were positive. Two participants requested minor changes to their transcript, one regarding typing errors and one regarding a sentence which could be interpreted incorrectly out of context. Participants were also sent drafts of Chapters Seven and Eight of the thesis. Two participants requested minor edits to their personal introduction; however no divergences were made regarding my interpretations.

In addition, the practices were sent the two thesis chapters, a draft of an article, an executive summary of the case study findings (and general feedback unrelated to the PhD). No responses were received from partners/directors. The HR Manager at Field View Vets commented on the in-depth nature of the reports. The HR Manager and Practice Manager at Cedar Vets responded with thanks for the feedback suggesting that they will use the report as "an invaluable tool to learn and progress".

## Introduction to the Embedded Cases

### Cedar Vets

#### Branches and Staff

Cedar Vets is an urban veterinary group. It comprises of five branches; four within close proximity of each other (maximum 5.9 miles) and one slightly more separated (18.4 miles from the furthest other branch) which is known as a sister practice. This is depicted in Figure 11.

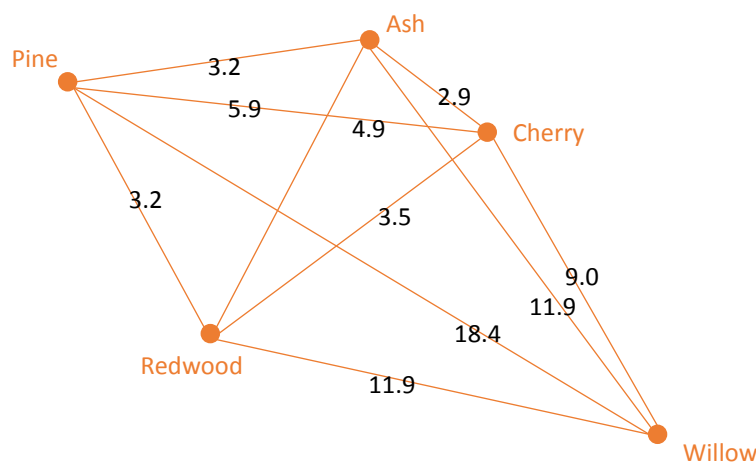


Figure 11. Geographical representation of the five branches that make up Cedar Vets. Black numbers indicate distance in miles

Upon initial contact in November 2013, the practice identified 39 members of staff. Thirty, 76.9%, responded to the SNA questionnaire as detailed in Chapter Four. Five individuals; two vets, a veterinary nurse, a receptionist and a Branch Manager, left the practice prior to the observations which took place in September-October 2014, 10 months after my initial visit to distribute the questionnaires. Two new receptionists, a Branch Manager (RVN) and a veterinary surgeon had joined the team. Due to timings and locations, not all members of the team were observed during the three weeks. In total 37 individuals were involved in the Case Study observations to a greater or lesser extent.

Many staff members rotate around the four centralised branches, but few, if any, also work at the sister site, Willow. While some vets, veterinary nurses and receptionists have identifiable 'base' branches, others appear to work just as often in several branches.

Redwood and Ash are the biggest branches; however they are quite distinct in the way they are viewed by the staff and had noticeably different atmospheres to me as an observer. Redwood was the first branch, set up in the 1970s by the current senior partner. I only saw the senior partner once as he now does limited day-to-day veterinary work. He is viewed as the "big boss" and some younger or newer staff may consider him unapproachable, despite his friendly demeanour.

In spite of its early beginnings, Redwood maintains a modern feel and exudes a sense of professionalism and welcome. It has grown vastly from its first days whereby the senior partner was joined only by his wife as receptionist, to the present day employing several vets, veterinary nurses, receptionists, a Branch Manager and two Practice Managers. The floor plan can be seen in Figure 12. The blue areas represent areas where clients can go while the purple areas are 'out back', and are therefore inaccessible to clients. There is, however, an open aspect to the front /back divide with the door to the lab/reception being open and the kitchen/store being open onto reception. This was seen by the Head Veterinary nurse as being advantageous as it allows veterinary nurses to keep an ear open for situations arising in reception.

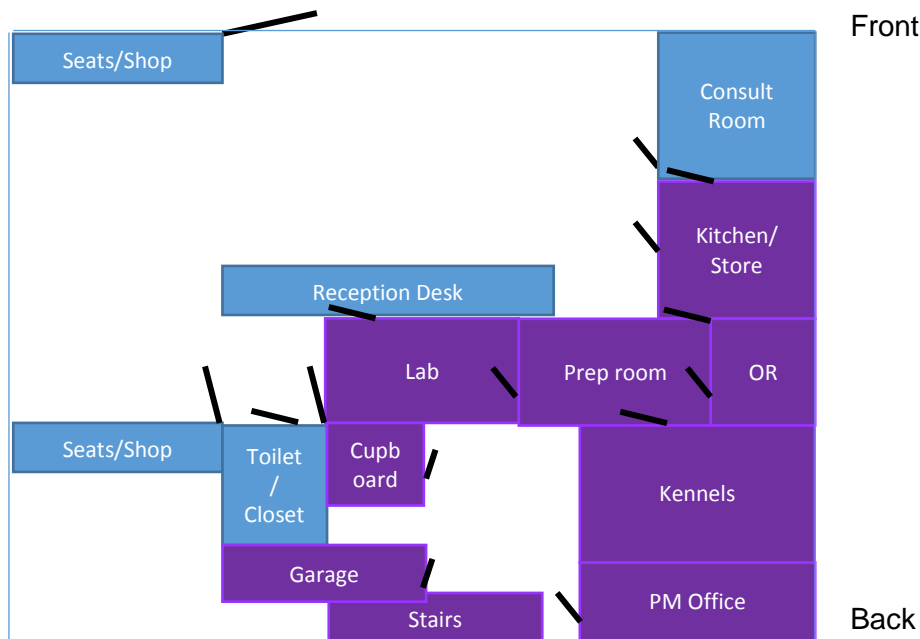


Figure 12. Floor plan of Redwood. Blue areas are for clients while the purple areas are for staff

As Figure 12 depicts, the Manager's office ('PM Office') is at the back of the building. In comparison, Redwood's Branch Manager works at the reception desk and is permanently visible to staff and clients. She has a pivotal role within the branch, and Cedar Vets as a whole, and is engaging and impressive in her work. Each branch has a manager and they regularly report to the practice manager through phone calls, emails and meetings. In turn they are responsible for the reception team within their branch. A veterinary surgeon lives in a flat above Redwood. This allows him some freedom to come and go while still being accessible to the team if required.

Considering it the main branch, I chose Redwood for my first day of observations. Over the observation period I was able to explore the branch and to observe and talk to whoever I wanted. Throughout my time with Cedar Vets I felt very at home at Redwood.

Ash is just as busy, if not more so than Redwood. In contrast however, it has a more cramped feel. The reception desk can just fit two receptionists and several people mentioned feeling like they were on top of each other. While geographically close to three other branches, and sharing many of the same vets, veterinary nurses and

receptionists, it is thought of as being different to the others; a somewhat cliquey branch. This, on the other hand, when viewed by members of the Ash team gives it a close-knit family vibe, full of people with the same interests. The Ash floor plan is shown in Figure 13. The door to the Prep Room is kept closed separating the back from the front making it rather difficult for the veterinary nurses to keep up with what is happening out the front.

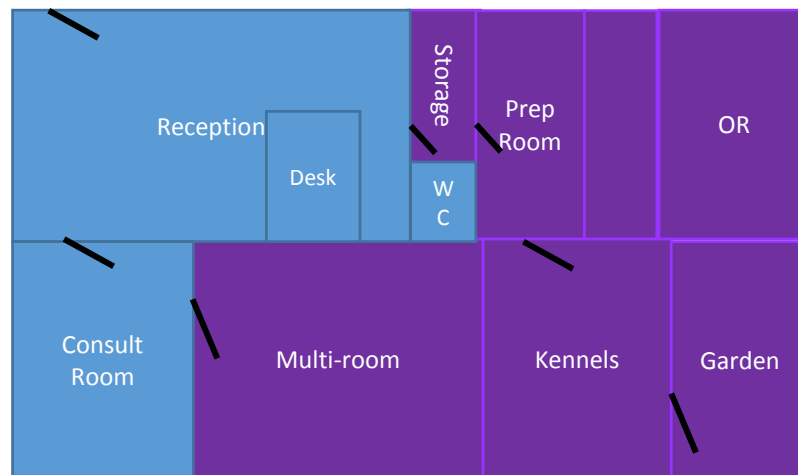


Figure 13. Ash floor plan

Cherry and Pine are much smaller branches. Veterinary surgeons visit them only when they have appointments booked during consultation hours. A veterinary nurse works at Cherry two days a week from 8am to 4pm. The branches are frequently manned by solo receptionists who take bookings and sell products. Cherry is the newest of the branches and is just 2.9 miles from Ash. While Ash has a constant buzz and fully booked consulting periods, Cherry is a quiet surgery, almost silent at times. This does however enable the staff to have excellent client relations and to offer a personalised friendly service. It might however, help the slightly chaotic Ash if some clients could be convinced to go to Cherry instead! Space in general is a challenge, especially for meetings. While I was there, a 'Rep meeting' was held in Ash's consultation room and a Branch Managers' meeting was held in Redwood's prep room; much to the dismay of the Head Nurse.

Willow is a separate entity, maintaining its unique name. Its head vet is, however, one of the Cedar partners and part of the Senior Management Team. Willow is situated closest to the inner-city and maintains a dedicated clientele which causes the reluctance to change its name, for fear of losing them.

## Promoting the Team

Cedar Vets promotes a sense of team to their clients via their website (Figure 14). The 'Our Team' page links to pictures and descriptions of members from each of the main professions and occupations.

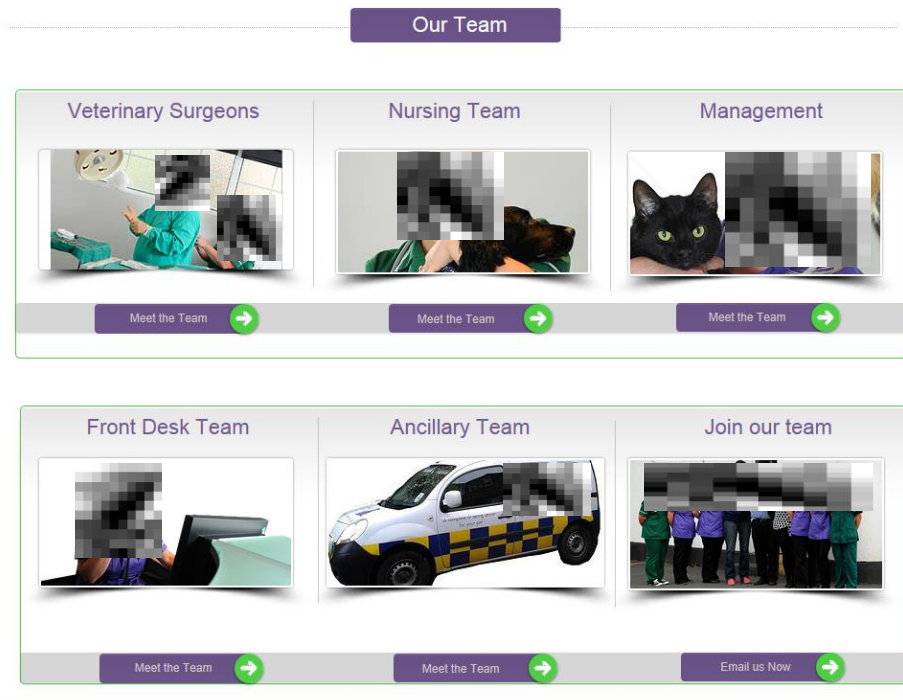


Figure 14. Screenshot of the Our Team webpage demonstrating the inclusive nature to all members of staff as part of the team

The website states that:

We employ qualified veterinary nurses who are registered with the RCVS. This ensures the highest standard of care for patients and offers an assurance to clients, the public and employers about standards of behaviour and professional skills. Our RVNs (Registered Veterinary Nurses) have a wealth of experience ... and work closely with the veterinary surgeons .... our RVNs' extensive knowledge of animal welfare ensures that patients' needs are prioritised.

Nurse clinics are also promoted and include weight clinics, senior pet clinics and puppy & kitten consultations. The website claims "As part of our mission to deliver the highest level of care for your companion, we offer FREE nursing clinics in a variety of areas, with our Qualified Veterinary Nurse Team."



Redwood is the only branch where the veterinary nurses are also promoted through a poster explaining these details, as can be seen in Figure 15.

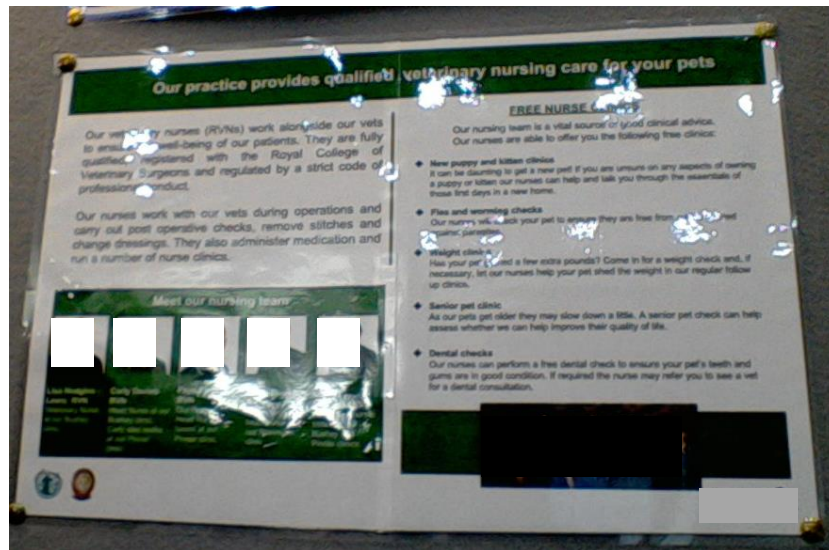


Figure 15. Poster at Redwood describing the work of the qualified veterinary nurses

Further to this recognition of veterinary nurses, the website states:

We believe that not just our vets and nurses, but all our staff play an important part in ensuring the well-being of your pet .... Investors in People is the national quality standard which monitors how we develop and support our staff. ... we have been accredited by IIP for a number of years.

### Online Presence

Cedar Vets are also members of the community and for example “work closely with the [local] branch of the RSPCA”. RSPCA staff repeatedly visited the branches to neuter cats.

Cedar Vets also promote their work through Facebook. They Joined Facebook in February 2013 and at the time of my website analysis (October 2014) had an average user rating 4.9/5.0 from 36 ratings and 446 total page likes. Nine of 16 comments were regarding the team and were unanimously positive. For example one client wrote “Vets, nurses and front of house staff are all brilliant”. Their own Facebook page may present a biased view of the practice; however Google+ reviews also demonstrate largely positive feedback. Ash branch had an average

review of 4.3 from 10 clients and Redwood an average review of 5.0 from four clients. Positive comments again depicted the excellent team:

[Vet] and the team of vets at Cedar Vets are first class. All the receptionists are so very very welcoming and friendly and very knowledgeable. ... [Vet] operated on [Pet] and was always to hand to ask advice, and he is a superb mentor to his staff I am sure. .... All the staff are superb and are a credit to the profession of veterinary practice.

Two negative comments were posted, which both relate to the cost of treatment at Cedar Vets and to the staff trying to “guilt” clients into buying more products for their pets. Cedar Vets have replied to these comments, stating their commitment to high quality treatment and offering the writers the opportunity to discuss matters in person.

### Focus Individuals

As described previously, six focus individuals from Cedar Vets were shadowed and interviewed. They were: George and Sofia (veterinary surgeons), Claire and Jenny (veterinary nurses), Christina (HR Practice Manager) and Samantha (receptionist).

George, SNA code VS1, is 45-54 years old, has been a veterinary surgeon for more than 20 years, has been at Cedar Vets for more than 10 years and works full time. He is a partner and part of the Senior Management Team. George is a well-liked member of the team and it's easy to see why. His ethos is, as he once heard on TV, 'to love what you do and to laugh every day'. This is apparent in his work. When not working quickly and efficiently through his consultations, George is likely to be chatting with the veterinary nurses about his favourite TV shows or lamenting where his cup of coffee has disappeared to, as the veterinary nurses rush around him preparing for the next operation. George's working relationships appear to be based on fun, mixed with a deep mutual respect. This is never clearer than in his work with Claire.

Claire, code VN1, is Head of Nursing at Cedar Vets. She is 35-44 years old, has been a veterinary nurse for 10-20 years and been employed full-time at Cedar Vets for between 5-10 years. Within the last two years Claire has been invited to join the Senior Management Team. In her interview Claire reported being nervous about undertaking the Head Nurse role due to lack of experience and being unsure about joining the Management Team as she just wanted to nurse. Both are roles that she

has clearly grown into well. She is a respected member of the team, being described by another veterinary nurse, Jenny, as a font of knowledge. This respect is perhaps gained somewhat by her self-reported highly organised and bossy nature! At least you always know where you stand with Claire and what she expects of you. Her friendship and work with the other veterinary nurses, and especially her light hearted micky taking of George, demonstrate the softer side of the strict head nurse.

Jenny, code VN6, clearly belongs to the Ash branch, and unusually does not work across sites. She is 25-34, has been a veterinary nurse less than 10 years and has worked full time at Cedar Vets for between 1-5 years. Jenny has an aura of youth about her and seems to be the baby of the Ash family. This is not reflected in her work, however, as she has many individual responsibilities and manages to work quickly and efficiently through her work in order to finish on time. She is close friends with other members of the Ash team and regularly meets them outside work.

Sofia, code VS8, is a veterinary surgeon who is married to one of the partners. She is 25-34, has been a veterinary surgeon for less than 10 years and has worked at Cedar Vets for between 1-5 years, now being part-time. Sofia primarily splits her consulting time between the hectic Ash and the peaceful Cherry branch, though I also observed her operating at Redwood. Sofia juggles the position of team member, Cherry branch boss, wife to a partner and daughter-in-law to the senior partner. Despite this challenge, she manages to succeed and is a well-liked member of the team and a respected individual, especially in her chosen specialist field. Sofia works closely with the Branch Manager at Cherry, Samantha.

Samantha, code R5, is 45-54, has been a veterinary receptionist for less than 10 years and at Cedar Vets for between 1-5 years. She works part time and was a receptionist when she completed the SNA questionnaire (therefore gaining the code R5), but she has recently been promoted to Branch Manager of Cherry. Sofia and Christina both reported to me during my observations how well Samantha had taken to her new role. While being quite a quiet person, Samantha has a wonderful relationship with the clients and patients, and greets them all enthusiastically as they come through the front door. Her diminutive size means she often chooses to stand behind the reception desk in order that she doesn't disappear behind it.

Christina, code A4, is the Practice Manager at Cedar Vets. She is just 25-34 years old, but joined Cedar Vets between 5-10 years ago and has worked her way up

from assistant to full PM. Although Christina works full time, she occasionally works at home and also travels around the branches throughout the week. She shares her office in Redwood with the HR PM and must share the multi-room space at Ash with the Branch Manager and anyone else who is around. Christina is quite a matter of fact and serious individual at work, however is also well liked and shows an unending belief regarding the Cedar Team and its future direction. She is a great support to the team, although some more independent workers may prefer a less hands-on manager. Christina will shortly be taking on more responsibility as the equally ranked PM and HR PM roles become one PM and a new deputy PM, who will be employed shortly.

## Field View Vets

### Branches and Staff

Field View Vets is a rural veterinary group. Four locations make up the group, however within each location there can be more than one speciality, which each have their own buildings. Three of the locations are close to each other (under 10 miles), while the fourth is up to 25.7 miles away (Figure 16).

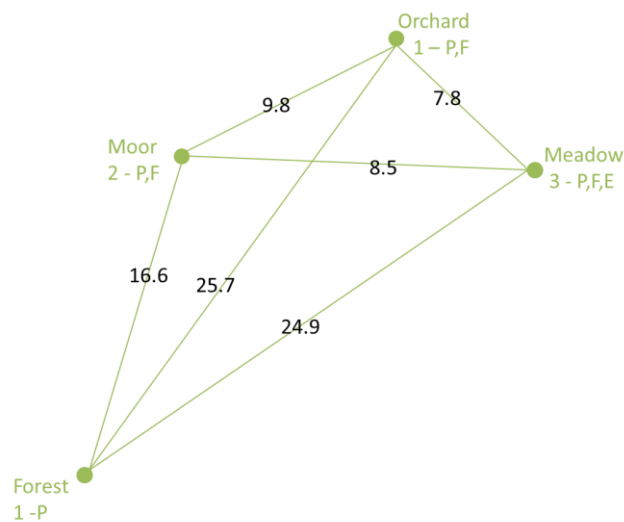


Figure 16. Geographic depiction of the four branches that comprise Field View Vets. Black numbers indicate distance in miles. Green numbers indicate the number of buildings, and letters the specialisation: P = Pets, F = Farm, E = Equine

I initially contacted Field View Vets in October 2013 and 72 members of staff were identified. Sixty, 83.3%, responded to the SNA questionnaire as detailed in Chapter Four. Two veterinary surgeons, six veterinary nurses (mostly trainees) and one builder had left the practice prior to the observations which took place in October-November 2014, 12 months after the SNA visit. Two farm animal vets, two receptionists, a qualified veterinary nurse, a student veterinary nurse and a stock controller had joined the team. In total 58 individuals were involved in the observations.

My B&B accommodation was run by the parents of an ex-Field View receptionist and was next door to one of the partners. Following stereotypical views of close-knit

rural populations, many people in the area knew each other well. Similar to Cedar Vets, I was granted a warm welcome at Field View Vets and was allowed to carry out my observations in all areas of all buildings. I began my first week at Meadow within the Pets building where I anticipated I would feel most within my comfort zone.

Meadow is the largest branch location, housing recently developed small animal (Figure 17) and spacious farm animal buildings on opposite sides of a car park, as well as a smaller equine building ‘down the bottom’. The administration team (two financial administrators, the PM, HR Manager and the stock controller) are situated on the second and third floors of the farm animal building. They are largely hidden from clients. Above the Pets building are two flats for vets. Meadow looks modern and attractive, but despite its purpose built nature, one veterinary nurse, for example, didn’t like the layout of the Pets building with regard to the ability to keep watch over in-patients while in the prep room or operating room. Despite this, it appears to an outsider to be an up-to-date slick design.

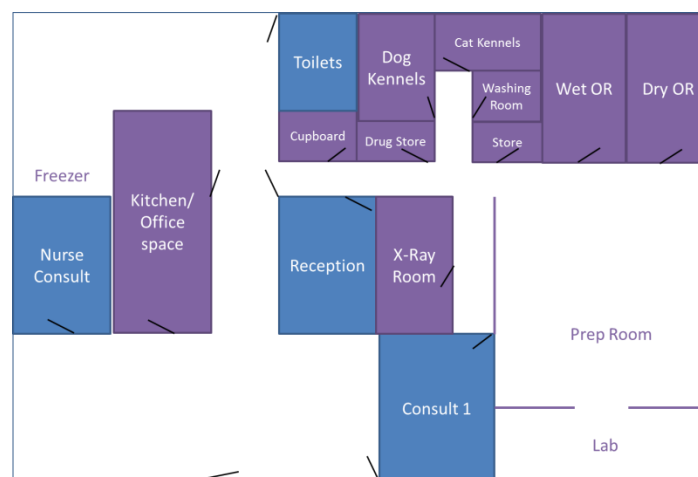


Figure 17. Floor Plan of Meadow Pets

Moor’s Pets layout on the other hand appears to have been successfully designed to fit an existing building, Figure 18. The lack of office or kitchen space is made up for by the flat upstairs, which is used by veterinary nurses who are constantly on site at Moor. The 24-hour emergency care offered by Field View Views is operated from Moor whereby veterinary nurses answer all calls and transfer clients to the appropriate on call veterinary surgeon. At Moor Pets, veterinary nurses greatly

outnumber the veterinary surgeons and have a definite presence. The nurses are split into working on reception, doing consultations or as the ward nurse. A telephone is a vital link between the reception area and kennels. The large numbers and relatively frequent hand-overs do provide the opportunity for mistakes through communication errors. Moor also has a farm animal building across the car park.

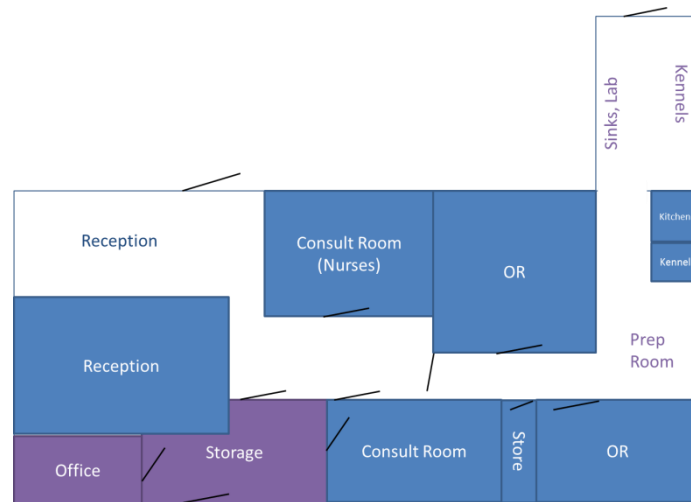


Figure 18. Floor plan of Moor Pets

Orchard is the only truly mixed building in the practice. Here receptionists deal with calls from farm animal and pet clients and work alongside farm animal and pet veterinary surgeons, plus on certain days, a veterinary nurse. The two main pet vets at Orchard were both farm animal vets prior to changing specialisation. Farm animal and equine branches operate quite differently to pets. Receptionists in farm animal or equine have many responsibilities with regard to organising the veterinary surgeon's visits to farms and stables and there tends to be no input from veterinary nurses. The veterinary nurses are almost unequivocally found in pets buildings. As depicted in the practice's sociograms (Chapter Four), the specialisations (pet, farm or equine) are more divided in their interactions than the branches. Apart from at Orchard there are few interactions across specialisations. As one vet claimed, the day of the truly mixed practice is over.

Developments regarding branch rotation were underway. Previously veterinary nurses had remained in one branch, but recently they have begun to work across branches. This is also due to be mirrored by the receptionists. The receptionists were organised by the HR manager but a new Head Receptionist position has been created. The different specialists and branches will be brought together in one pool of receptionists. A receptionists' meeting cascaded this information to the team.

Resistance is apparent, and is perhaps partly based on the lack of support for the new Head Receptionist stemming from the poor way that this appointment was disseminated. Change is likely to be especially repelled by Forest, a small Pet branch located far away from the other branches. It primarily consists of the 'dream team' of one vet, one nurse and one receptionist who enjoy working together and are less keen on people entering their domain. Forest appears to be quite separate to Field View as a whole, although I observed both the main vet and nurse working happily at other branches.

There are 10 directors at Field View. These include veterinary surgeons from all specialities and branches. While being a challenge in terms of synchronising meetings and coming to final decisions, this number was suggested as a way to temper the stronger characters. During my last week, one of the directors was in the process of designing a flow chart of management; however, as this was under development I was unable to have access to it.

### Promoting the Team

The 24-hour care from nurses is promoted on their website as a main reason to choose Field View Vets; "At [Field View] Pets, we understand how important your pet is to you, so a veterinary nurse stays with your pet at all times". Nurse clinics are also included as the last bullet point within the list of services; however no further details are given. Consulting Room 2 at Meadow is the designated Nurse Clinic. The sign on the door (Figure 19) is generic from the British Veterinary Nursing Association (BVNA) and Society of Practising Veterinary Surgeons (SPVS) and describes some of the roles and duties of veterinary nurses.





Figure 19. Poster on the Nurse's Clinic door

Moor also had a dedicated nurse room which had a poster showing pictures and information of all the veterinary nurses. Unlike the Cedar Vets website, the only individuals included on Field View's "Meet the Team" webpages are the veterinary surgeons. The notable exception is the equine page which includes their two receptionists.

### Online Presence

Field View Vets joined Facebook between 2013 and 2014. Each specialism has their own page and posts regularly. There are, however, relatively few reviews or 'likes' in comparison to Cedar Vets. This is potentially due to their rural location with a clientele less prone to contributing opinions online.

### Focus Individuals

Six people were again chosen to become focus individuals: Paul and Jim (veterinary surgeons), Amber and Kimberly (veterinary nurses), Rebecca (HR PM) and Olivia (receptionist).

Paul, SNA code VS13, is a director and works almost solely at Moor as a small animal vet. He is 35-44 years old, has had between 10-20 years clinical experience and has worked full time at Field View Vets for more than 10 years. Paul is a well-loved mainstay at Moor. He can remember back to when there were no veterinary nurses, and is now surrounded by them. They are very fond of him and have a

tendency to put an affectionate “-ey” on the end of his name. All staff seem to feel inclined to look after Paul and make sure he’s OK, despite his age, status and abilities. As a director he is undoubtedly one of the quieter characters, however he is evidently central to decision making, especially with regard to the Pet side and has a close relationship with another director, who is perhaps the most recognisable director of the 10.

Kimberly, code VN5, is an RVN who is also based largely at Moor, though she does work elsewhere. Kimberly is relatively new, having been at Field View less than a year when the SNA questionnaire was complete. She has now, therefore, been there two years and has clearly settled in well. Kimberly is already an experienced veterinary nurse, having qualified between 10-20 years ago. She is 25-34 years old and works full time. Kimberly is another softly spoken character with an unmistakable warm heart and caring nature towards her patients and colleagues. As an experienced RVN, Kimberly, has the responsibility of being a mentor to the latest trainee veterinary nurse at Field View Vets. Although she expressed concerns about situations where she’s the most qualified veterinary nurse on site, my observations of Kimberly ascertained to me that her concerns were unnecessary.

Amber, code VN12, is the second RVN I shadowed. Amber is Head Nurse at Meadow and Deputy over all. She tends to remain at Meadow. Amber is 25-34, has been qualified for less than 10 years and has been employed full time at Field View for between 1-5 years. Amber, with her responsibilities, friendly nature and good relationships with all staff is the heart of the Meadow branch. She works especially closely and effectively with one of the directors who is often at Meadow, and humours him during his random bouts of singing. Like Kimberly, she also has responsibility for a student veterinary nurse, with whom she gets on well, and who is renowned as one of the most competent nurses they’ve trained. Amber manages to balance a likeable nature with strong, though subtle, leadership skills to guide the nursing team at Meadow. Amber is also part of the representative group organised by one of the directors and Rebecca.

Rebecca, code A1, is the HR Manager. She is 35-44, has been in this role for less than 10 years, and at Field View for between 5-10 years working full time. Rebecca was my main point of contact during the project and has been incredibly helpful and giving during this time. This is remarkable when you appreciate the range of work that she undertakes. Rebecca herself, and the directors, understand how much of a

central role she performs in the practice. From her initial role as PA, she has enveloped additional roles over the years. I had anticipated that a PM-type position would not endear itself to the staff, but Rebecca has very good relationships with staff and is well thought of, even if her intensity for health and safety precedes her. She makes the effort to come down from the admin nest above the Farm building to meet face-to-face or call most people, especially in the other Meadow buildings. My interview with Jim for example demonstrated his appreciation for her support over the years.

Jim, code VS12, is a young equine vet aged under 24 years old, who qualified in 2012 and has worked at Field View Vets for between 1-5 years full time. Jim started out in Farm but his love of equine work took him to the Equine department during the period between my SNA and observations. A cheeky chap, Jim is also very humble in his work and is keen to learn from all those around him, whatever age or profession. Jim is known throughout Field View Vets, an achievement perhaps gained through his dual work in two specialisations and also his sense of humour. Jim's comments regarding Rebecca's support did, in truth, largely relate to his accident prone nature. Jim is not a native to the rural location he works in, but has been back and forth to Field View Vets since his school days and has settled into the work and the social aspects incredibly well.

Olivia, code R2, on the other hand is most identifiably from the rural location of Field View Vets. She is perfectly at home at Orchard where she works with both Farm and Pet clients and vets. She is also under 24 years old, has been a receptionist for less than 10 years, and employed part time at Field View for between 1-5 years. Olivia was also very new during the SNA questionnaire period, but due in part to her prior friendships with several of her co-workers through family connections, she has fitted in seamlessly. Her knowledge of the farm side was especially impressive to me, as someone who has almost no idea of what it takes to run a farm. What knowledge I do have would be considered controversial at a Farm practice as it stems from my veganism, which made spending time in farm animal practices difficult on occasion. However it did not lessen my appreciation of the friendliness or aptitude for the various responsibilities that Olivia, and others with opposing beliefs to mine, undertake.

## Comparing the Cases

The differences between the practices which elicited their selection as cases were apparent. The size of the practices was vastly different in terms of number of people employed and building size/space. The work flow process in terms of where individuals work and when was also disparate. The differences due to species work were very striking at Field View Vets and not an issue at the small animal only Cedar Vets. Urban versus rural location differences became visible when clients were considered and the issue of being independent or part of a group were at the same time both obvious and hidden.

Throughout my time at the practices however I was struck by several similarities which I had not anticipated. These topics will be explored in more detail during the subsequent chapters but are outlined briefly here. Both practices are long established and have evidenced significant evolution in their team composition. They now comprise directors/partners, PM, HR manager, finance, veterinary surgeons, veterinary nurses and receptionists. The practices have three or four close branches which share staff and one branch physically disparate and with a separate identity. Within the close branches, one was considered reluctant to change and had, to some extent, a cliquy team. Both management teams were looking towards formalising their structure and increasing interprofessional meetings and following Investors in People (IIP) frameworks.

In the following chapter the structure of IPW/L, and the factors that facilitate it, will be presented. Chapter Eight then focusses on the challenges of IPW/L in veterinary practices.

## **Chapter Seven: Interprofessional Working and Learning: Structure and Facilitation**

### **Introduction**

The previous chapter introduced us to the two case study sites and the 12 focus individuals within them. Cedar Vets is an independent, medium sized, multi-site small animal practice in an urban area. In contrast, Field View Vets is a member of a group of practices; Field View Vets itself is a large, multi-site, mixed practice in a rural location. Despite their differences, as indicated in Chapter Six there were also several similarities in their team compositions and the ways in which IPW/L was structured and promoted. This chapter will consider the findings from the case studies. The two sites and their focus individuals are outlined in the following table as an aide-mémoire.

Table 17. Summary of the embedded case study sites and focus individuals

	<b>Cedar Vets</b>	<b>Field View Vets</b>
Animals treated:	Small Animal	Mixed (Small, Farm, Equine)
Location:	Urban	Rural
Size:	Medium <40	Large >70
Branches:	5	4
Status:	Independent	Corporate
Focus Individuals:		
Director/Partner – VS	George	Paul
Veterinary Surgeon	Sofia	Jim
Head Veterinary Nurse	Claire	Amber
Veterinary Nurse	Jenny	Kimberly
Practice/HR Manager	Christina	Rebecca
Receptionist	Samantha	Olivia

In this chapter the sub research question considering factors that facilitate and promote IPW/L will be considered. As proposed in Chapter Five consideration of

boundary crossing, distributed cognition, and importantly an adapted Cultural Historical Activity Theory (CHAT) framework, will aid analysis. Chapter Five summarised that not all aspects of CHAT and activity systems would be used in this analysis. Engeström's focus on changing activities and the use of resources such as the Change Laboratory were not implemented. Instead, the case studies allowed ethnographic research of a phenomenon which is changing by itself – namely interprofessional working in the veterinary field. CHAT does provide a very useful structure in terms of activity systems. Activity systems consider the overall object of activity of any one individual or group as well as the different elements of instruments, rules, community and division of labour that make up the outcome. Further to this activity systems present the concept of contradictions between any two elements which is useful for considering challenges to IPW/L (Chapter Seven). Boundary crossing involves individuals (brokers) and objects. Several boundary spanners have already been identified in the SNA (Chapter Four). Subsequent consideration of what constitutes a boundary spanner and how they cross their boundaries is provided in this chapter. The benefit of utilising the skills and knowledge of different professions and occupations for one ultimate goal is considered through distributed cognition.

There are two main sections to this chapter. The first describes the structure of IPW/L observed and the second portrays the facilitators of IPW/L. These themes and the subsequent sub-themes were issues empirically identified in the data through inductive reasoning. Thematic analysis of the interview transcripts triangulated with the extensive field notes identified the salient themes that are considered here. The first section regarding IPW/L structure (hierarchy, spatial and temporal) was the most striking aspect of the observations and was consequently discussed within the interviews. In this section the community will be reflected upon with regard to its division of labour and rules of interactions. The spatial and temporal nature of interprofessional interactions will also be explored and this will ultimately provide some indications for proposals of interprofessional education in Chapter Nine. Managerial developments of infrastructure which have enabled IPW/L will also be related. The second section considers facilitators of IPW/L, namely 'trust' and 'value', which are direct quotes from the interviews of several participants. The section also includes the consideration of the controversial topic of accountability. This section includes detailed consideration of the expanding roles of occupations which relates back to Chapter One.

To introduce this chapter, I present vignettes from both Cedar Vets and Field View Vets. The vignettes are chosen as they demonstrate the main themes of the structure of IPW/L and trust/value. They are designed to provide the reader with a feel for veterinary IPW/L in practice. The bold introductions are adapted versions of the field notes to provide context. Normal font demonstrates prose taken directly from the field notes which reports speech ad libitum in quotation marks. Please refer to Chapter Six for further information on coding.

The first vignette is from Cedar Vets, spread over two days and involves three of the focus individuals from the study: Claire (Head Veterinary Nurse), Sofia (Veterinary Surgeon) and Jenny (Veterinary Nurse). In addition, another veterinary nurse is involved, VN. It depicts a veterinary surgeon asking a veterinary nurse for advice as well as showing the division of labour between the professions during an operation.

#### Vignette One

##### **Cedar Vets Day 9, Redwood Branch. Shadowing Sofia.**

**Sofia and Claire have finished their operations for the morning. They are having a quick break and bite to eat.**

One of the nurses [VN] it turns out is going to bring their ferret in for a dental. Sofia sees it in her ops, "oh I've got a ferret dental. We gas them don't we with ferrets?" she asks, Claire says "yes, gas and tube it", "oh I can tube it?" Sofia replies, "excellent". Claire tells her that she has once done one with [another VS] and that's what they did.

##### **Cedar Vets Day 10, Ash Branch. Shadowing Jenny.**

**Jenny and the VN who owns the ferret are out the back. The Ash branch is for once relatively quiet; the ferret dental is the only scheduled operation. The veterinary nurses are steadily preparing for their day.**

"Do you know you are supposed to treat ferrets like cats and dogs, starving etc?" [VN] asks, "oh really ..." Jenny replies.... "So are you gassing the ferret" Jenny asks, "I think she [Sofia] said tube him too with a pre-med but she said she'd talk to me when she gets in" [VN says]. ... "Are you going to need the dental machine for the ferret?" Jenny asks [VN]. "No he won't need scale and polish or anything, yeah it's just an extraction".

Sofia arrives. "What do you need ready, are you tubing?" Jenny asks Sofia, "yeah a 2.5". "Shall we gas him in the box?" Sofia asks, "yeah" Jenny says. Jenny gets all

the box and gas ready.

Sofia has left the prep room. "What else do we need?" Jenny asks [VN], "[I've] got tooth extractor, does [Sofia] need the spray?" "Yeah maybe" [VN] says. "[Drug] or, no because?" Jenny, "yeah no" [VN] replies.

While we wait for Sofia, Jenny does the laundry and makes sure all the instruments are ready. [VN] and Jenny go to check on the ferret. Jenny says "is he ready shall I get [Sofia]?", "no not ready yet".

[Sofia] comes in; "Shall we try him?" "So are we tubing him?" [VN] asks, "yeah, gas then tube". [VN] puts him in the box. "Might need a laryngoscope can't remember how easy they are to tube" [Sofia says], [Jenny] gets it, she says there is no light, asks why? try twisting this [Sofia suggests].

Jenny starts to dismantle the gas but Sofia tests him and he's not ready, so they put him back, Jenny asks "what did you have him on?", "number five" [VN] says.... They try again, [VN] holds, Sofia intubates, Jenny removes the box and fits the tube, [VN] asks "shall put him on low?", "yeah" Sofia says. ... Sofia says increase level and [VN] does, he moves, Sofia checks it is in, bag is moving, Sofia asks for the drill, Jenny gets it ready. "Hang on"; she's making progress without it. [The tooth is] out, "nice one" they all say. Sofia asks "do you want scale and polish?", [VN] says no. They chat... The ferret should have pain relief. Does he need anything else [VN] asks, see when he wakes up Sofia says. Sofia and [VN] check him, Jenny cleans up. Jenny cleans down the table, [VN] puts the ferret back, Sofia goes to check.

This second vignette is from Field View Vets. It is a selection of field notes taken over the course of an afternoon relating to the conversations between the focus individual Olivia (receptionist) and a new farm animal veterinary surgeon that has recently started at Field View Vets. Two receptionists (R1 from Orchard and R2 from Meadow) are also included. The examples demonstrate the veterinary surgeon making use of the receptionist's knowledge as well as the division of labour with regard to the necessity of veterinary surgeons to 'ok' certain products for clients. Orchard branch is a mixed animal branch whereby Olivia deals with both small animal clients/veterinary surgeons and large animal clients/veterinary surgeons.



## Vignette Two

### **Field View Vets Day 10, Orchard Branch. Shadowing Olivia**

**VS has been out on a visit. He radios in and Olivia informs him he can return to the branch as he's finished his visits for the morning.**

[VS] returns and [Olivia] asks him to OK some drugs via the prescription form. He hands her some forms from the farm and [Olivia and R1] tease him about catching lame sheep...

[Olivia] double checks the prescription with [VS], who adds 'LA' to the farm and signs the form. She gets a call and asks [VS] again to OK things. They chat again about the market last night...

Call from [Meadow branch] wanting bottle drench ok'd, [Olivia] asks [VS], he doesn't know the term, she says "you know bottle drench", he checks if they mean the bottle itself, she asks the caller the made up stuff or a bottle, and replies the made up stuff, "you know the stuff we have in wine bottles", "oh" he says "yeah that's fine", she tells the caller and they go to check the bottles which do indeed say bottle drench, [VS] says he's yet to learn the lingo...

[VS] sees phone call from [R2], [Olivia] says "just answer it they probably want you to ok more drugs", he picks up, they want [Olivia]! [VS] asks how you transfer the phones, she says press the little button that says transfer and then [number], he does so. She speaks to them and they want to know what's in the bottle drench, [Olivia] says "you want [R1], I'll pass you through"! [R1] talks to [R2]...

[VS] asks [Olivia] how to bill the visits he's been on for his ticket, she tells him the right term to put, and reminds him to tick boxes for ministry work...

"What's RT?" [VS] asks, "is it re-test", "yeah" [Olivia] says, or "read test" [VS asks], "read test" [Olivia] says, "what did you say first time, re-test, no it's read test"...

Farm client in, [Olivia] deals. [VS] talks to the client about a new pour on treatment, asking if he'd like it, [Olivia] asks wouldn't that get washed off, you have to keep them in [VS] says. ..

[VS] asks [Olivia] about what to write on a specific slip, she tells him...

While on hold [VS] asks [Olivia] if she remembers a client, he doesn't remember his last visit there, she describes [the client], tells [VS] how many animals he saw, he remembers the farm, she confirms...

[VS] comes down, looking for some results, says to [Olivia] "this is the draw results go in to be filed isn't it, will [results] be here?", she asks him if he did it this week, he goes through a few and finds it.

This chapter will now consider how IPW/L is structured and facilitated as identified above in detail.

## **Interprofessional Working and Learning: Structure**

### **Hierarchical Organisation of Work**

It could be hypothesised that the hierarchy of a team would become flattened, more horizontal, as interprofessional working increased. The current situation within both practices was observed and the results indicate that the organisation of work is both complex and fluid.

#### **Promoting a Hierarchy**

Christina, the Practice Manager at Cedar Vets explained to me in her interview that “we try and have a hierarchy, I’ve got it here, umm where, the idea ... behind it is everyone knows who their line manager is, it’s clear” (Christina, I). The allocation of individuals to line managers needs to be fair, and not convenience based as Christina also mentioned. The hierarchy that Christina describes is depicted in Figure 20. It includes individuals who were not yet employed during my study, such as the incoming replacement of the previous HR PM by a new deputy PM. I was in attendance at the Branch Managers’ meeting where this new structure was distributed by Christina and it was well received.

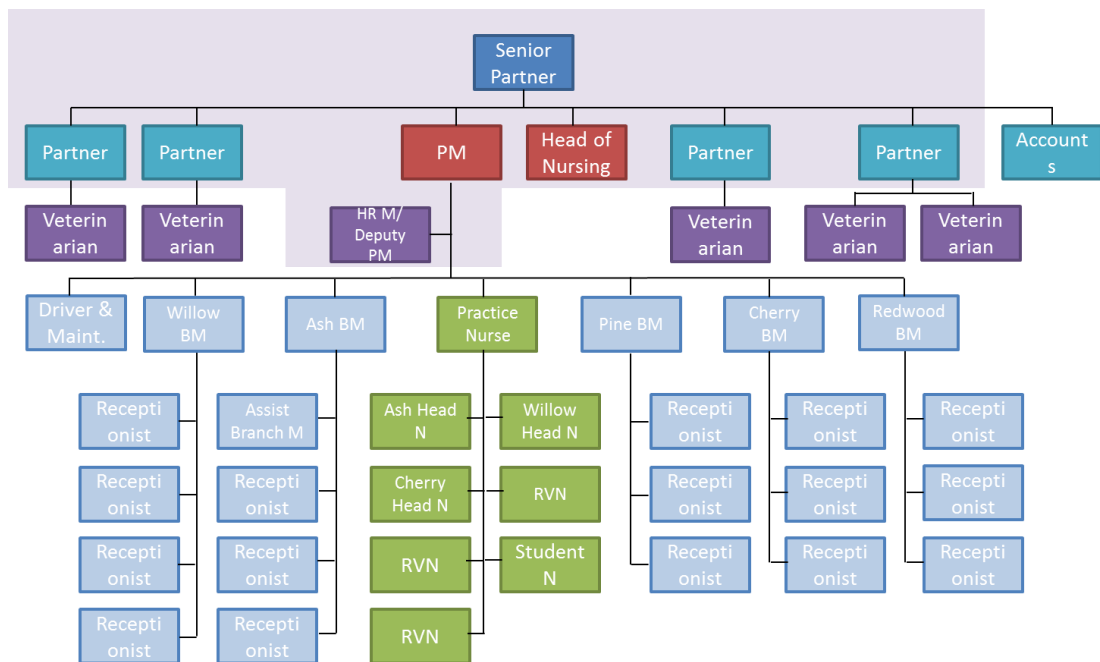


Figure 20. The hierarchical managerial structure at Cedar Vets. The light purple box surrounds the Senior Management Team. Key: PM = Practice Manager, BM = Branch Manager, RVN = Registered Veterinary Nurse.

One benefit of a hierarchy from the managerial aspect is that it can ensure their staff know who to go to should they have a problem. In addition to their line manager, most staff at Cedar Vets also have a mentor, designated as someone to approach for an informal chat.

Figure 20 not only demonstrates how individuals lower down the hierarchy are connected to their superiors in terms of line managers, but also starts to reveal how practices aim for information to be cascaded from top down. This is better depicted in Figure 21 which includes groups primarily relevant to Field View Vets.

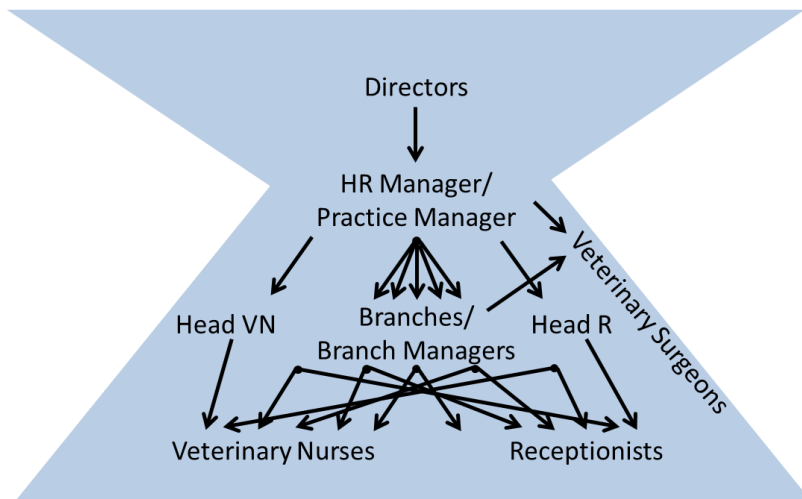


Figure 21. Planned top down cascade of information for Field View Vets

### Mid-Level Managers

This flow of information was seen as particularly important at Field View Vets whereby the creation of a new role, Head Receptionist, strengthened the structure which should be abided by. Receptionists are now expected to go to the Head Receptionist with any queries, just as the veterinary nurses are expected to go to the Head Veterinary Nurse. This was characterised by Paul, a director: “[The directors] are now having to learn when receptionists come to us to say you don’t speak to us speak to [Head Receptionist]” (Paul, I).

There is therefore the potential for contradictions between community and the new rules. The finalised structure is yet to be complete, one director is currently trying to draw it out and consult with the directors and head individuals. The new rules were suggested to limit the amount of time directors will spend on general queries, and is also anticipated to provide more consistent and accurate answers by having a single port of call. SNA results and sociograms depict Paul, VS13, and another director, VS25, as being very central to information flow. They are both small animal vets and are likely to have been approached by veterinary nurses and receptionists in the past, it is estimated that they will most benefit from and value these head roles as the network of interactions develops over time.

## Brokers

The individuals who undertake appointed head roles are important knowledge-brokers as they link one group with another. Knowledge brokers can be described based upon their group membership (Currie & White, 2012) as identified in Chapter Four. The HR Manager and PM have, in accordance with Fernandez and Gould (IN Currie & White, 2012), 'liaison roles' as they do not belong to the director group above or clinical groups below but transfer information from one to the other. The Head Veterinary Nurse and Head Receptionist have 'representative roles', being delegated by the senior director group to disseminate information to their respective groups, who are in positions slightly below them. The SNA scores of all PMs, HR Managers and Head Veterinary Nurses demonstrate their importance in information giving as a central connector and suggest an experience-based hierarchy of interactions in addition to the purely profession-based hierarchy of interactions. Scores for the PMs and HR Managers in both practices also demonstrate their central position of information flow, which includes cascading information from top down and reporting information bottom up (information brokers). Cedar Vet's PM, Christina, and Field View Vet's HR Manager, Rebecca, were two of my focus individuals, chosen for their central location in sociograms. They both indicated in their interviews that they talk with everyone, daily, via different modes of communication. They both make a concerted effort to be seen in order to aid information flow (boundary spanners). During my day shadowing Christina we visited three branches. While shadowing Rebecca at the Meadow branch, we walked downstairs to Farm, across the carpark to Pets, and made repeated phone calls to Equine.

The SNA results of the Head Veterinary Nurses suggest that they are currently not the only route for information flow into the nursing sub-teams and that the nursing team is clustered away from other groups, for which its members are connected via individuals such as the PM, HR manager and key veterinary surgeons including Paul and VS25. The SNA results show that the head nurses are not only important within the team for information sharing, but also advice, problem solving and influence. The interviews reflected this notion, for example Jenny (VN) described Claire (Head VN) as a font of all knowledge. While Paul (VS) said of the Head VN at Field View Vets "other people look up to ... her don't they, I mean she gets the respect she deserves from other members of staff" (Paul, I).

The appointed Head Receptionist at Field View Vets had yet to begin her new role at the time of the questionnaire and so her results are not presented here. While Cedar Vets does not have a Head Receptionist, the Branch Managers fulfil this role. Both Christina and Rebecca report using Branch Managers or receptionists as a way to transfer information to the team. For example the receptionists at Field View Vets are often required to put a Memo on the notice board.

These key people bridge the divide between the veterinary directors, who are sometimes considered unapproachable or intimidating, and those that work 'on the ground', the veterinary nurses and receptionists. Claire, Head VN, was fully aware of this position; she said "I think they see me as a kind of like middle person" (Claire, I). Rebecca [HR Manager] also understood her position, calling herself a 'hinge pin' and explaining that "a lot of people will see me as the link between themselves and the directors" (Rebecca, I), even though she does not belong to either group. Amber is the deputy head nurse at Field View Vets. Observations of Amber put her squarely in the centre of the Meadow Pets branch. She has a group of qualified and student veterinary nurses for which she is responsible who look to her for guidance regarding which, and how, tasks are to be completed. In turn, the branch's head vet, who has already been mentioned in this chapter, VS25, looks to her for an update as soon as he walks through the door. Amber is also a member of the 'Rep group' which takes ideas to a higher level. This group is explored further later in the chapter. The directors are aware of the importance of the people they selected as managers. Paul described the current practice head nurse as being "a really good ambassador between the directors and the, certainly the nurses" (Paul, I), while he remembered a previous head nurse that he had worked with who did not necessarily support the directors' decisions and made this clear to her nursing team. The key people are therefore by definition boundary crossers, spanning different professional groups.

The position of a middle person can cause suspicion. Someone who has access to the directors must gain the trust of the people on the ground, that they won't whistle blow on them if they were caught chatting for example. Sofia, veterinary surgeon at Cedar Vets has boundary crossing potential as she is, though not a partner herself, married to a partner, and also the daughter-in-law of the senior partner. Like Claire, there are issues of trust with the other staff: "I think it can be difficult with staff relationships, perhaps they feel like they can't always be normal around me, or they can't gossip around me" (Sofia, I). Sofia however does not cross this boundary and

subsequently any reluctance for interaction with her was not apparent in my observations, with the team acting in just as relaxed way with Sofia as with any other individual. Therefore not all potential boundary spanners cross their boundaries.

### Interprofessional Boundary Objects

Through the collection of artefacts, several instruments were identified which were utilised by multiple professional groups. These artefacts included the map at the mixed Field View Vets branch as portrayed in Chapter Six as well as a faecal count information sheet. Veterinary nurses at Field View vets were taking over the role of performing faecal sample tests for the large animal vets. As documented in the branch meeting minutes:

Faecal egg counts – nurses [out of hours] will be doing them, [VS] happy to go thru' some training with the nurse team, [VS] will go through equine. Nurses will only be trained once and wish to use the easier method, this is the vetpack method which is currently at [Meadow], this will need to be swapped to [Moor] for their training. Nurse aim to do them thru' the day where possible (Field notes, S)

This cannot be described as a 'jostle' for jurisdiction (Bechky, 2003) as examined in Chapter Two as the veterinary surgeons were the group passing the role onto the, perhaps reluctant, veterinary nurses; it is therefore more akin to passing on 'dirty work'. However, this change in division of labour, as can be seen in the above notes, led to the requirement for training of veterinary nurses and more responsibility. A new, young, veterinary surgeon took on the training for the farm animal side. She created an information sheet depicting the possible egg types that the veterinary nurses would be required to identify. These instruments are an example of Engeström's boundary objects and can be used to facilitate understanding between groups. These objects use a joint discourse and enable recontextualising of profession specific knowledge.

### Complex Hierarchies – Experience Based

The visible managerial based hierarchy identified in Figure 20 above is joined by the historical hierarchy based on division of labour. Claire, the Head VN at Cedar Vets described how she likes the formal structure of different professions:

reception ...[will] come and give us a hand but I like them to know, sounds really awful doesn't it, they are receptionists, they need to

know that they are out here and we are out there, and if we ask you that's fine, but you know you can't just come and hold an animal (Claire, I).

Christina describes this structure as obvious:

it's obvious but all the receptionists are there underneath the branch managers, the branch managers are underneath the vets and then you've got the partners and senior management, so it just, it just defines the whole hierarchy (Christina, I).

While some of the veterinary nurses were considered to be so experienced that they could do much of the work of a veterinary surgeon (the Head VN at Field View Vets was identified in interviews with Paul (VS) and Amber (VN) as having this ability) it was with the caveat regarding knowing what they can and can't do – nurses know their role within the legal boundaries and the practice norms. 'Knowing your role' may seem derogatory, however the nurses were largely happy with their role and as one stated, "none of the nurses here want to be vets" (Claire, I).

There are many rules regarding the division of labour which are set out in practice guidelines. For example the Receptionist Guide at Field View Vets states that 'Prescription only meds need to be authorised by a vet'. Cedar Vets have a well-established Practice Manual in which each profession's job description or profile is displayed. A brief excerpt regarding working with others from the head nurses' Role Specific Competencies is shown in Figure 22.

Good comm. and listening skills with clients and other staff.	Knowledge & Sound management of products and services and dispensing & ability to pass on information.	Welcoming and empathetic to clients & staff. Approachable, caring, friendly
---	--	---

Figure 22. Head nurse's Role specific Competencies. Columns represent Skills, Knowledge, Attitude

The managerial, experience and division of labour hierarchies are encapsulated by the hierarchies demonstrated by the SNA. The SNA results indicated a hierarchical structure to certain interactions whereby veterinary surgeons remained in a dominant position. This is considered in the following chapter as an area of challenge for IPW/L.



Observations and interviews demonstrated that all focus individuals felt part of the team. This included those focus individuals originally chosen due to their more peripheral position within the SNA results. With regard to the veterinary surgeons, through choice and necessity, the two 'peripheral' individuals were actually boundary crossers; Sofia as explained above, and Jim as he was previously employed in Farm and now in Equine. If anything, they therefore felt part of more than one team. The two core veterinary surgeons were a partner and a director and did therefore enable a different view to be granted to these 'assistants'. In reference to the peripheral veterinary nurses, especially Kimberly, who joined the practice not long before the SNA questionnaire, she has become integral to the practice and also does not appear to live a peripheral existence. Again, however, the choice of Amber and Claire as Head Veterinary Nurses with high SNA connectivity does provide a diverse perspective. The clinical core individuals were therefore partners and head nurses, highlighting the importance of appointed leaders in resource flow. It is challenging to compare Practice/HR Managers with receptionists; however there is a clear difference in the amount of interaction a Practice/HR Manager has and a typical receptionist has. Interestingly, the personality scores of the focus individuals suggested higher scores of core individuals than peripheral individuals for the attributes conscientiousness, neuroticism and openness, and little difference in the extraversion and agreeableness scores. As identified however, the peripheral key people were only peripheral in relation to the very central core people and the significance of these results cannot be assessed due to the low number of individuals who undertook the personality test.

The identified phenomenon is a hierarchical structure based on membership of a profession which is actively promoted within the practices. The character of the hierarchy is however textured. Overshadowed by the evident culture of a hierarchy in veterinary practices, examples of veterinary surgeons making use of other professions' knowledge and experience were seen in observations and discussed in the interviews. In some cases therefore the hierarchy is more fluid and is flattened, whereby individuals were approached based on their knowledge rather than their classification as a member of a certain profession. This was especially true for Head Veterinary Nurses who have evidently been promoted due to their experience and expertise which is relied upon by the other professions. It was also apparent that individuals did feel that they could speak up rather than 'salute and stay mute' (Patterson et al., 2001) as explored in Chapter Five. Claire suggests that at Cedar Vets "there's more of a culture of actually speaking to the vet" and "I'm never

worried about saying to any of them, you know, I don't think that's right" (Claire, I). Experience based interactions are explored in the second section of this chapter regarding trust and valued opinions.

### Team Ethos

Despite the structured organisation of work, there tended to be a positive atmosphere in the practices and a feeling of a team built up of people who knew each other well and by and large were friends. This was made evident by the frequent 'small talk' which occurred intra- and interprofessionally:

They [VS and Kimberly] do start to chat about other things, new houses, weddings. They obviously know a bit about each other to ask the right questions.

### Spatial and Temporal Dimension of IPW/L

The spatial and temporal structure of IPW/L is task orientated. Interprofessional interactions occur when and where professions have responsibility for a certain task which requires the input of another. This formal structure, as identified below with respect to consultations and operations, is restrictive to other forms of IPW/L which must occur in an opportunistic manner as highlighted later in this section.

### Consultation Periods

The following example from Cedar Vets demonstrates the primary interaction type occurring during consultation periods. It involves Sofia the veterinary surgeon and a Receptionist, R.

[Sofia] calls the client in, just a minute late. I don't go in, as the only way she can have an interaction with another team member is to come out to reception, as [R] is busy on the computer.

The patient comes out and [R] makes another appointment. Sofia stays in the consult room and makes the notes on the computer. Sofia comes out to remind the client that he will need to book a further appointment. He is due to pick up more tablets but [R] sees there aren't any and confirms with Sofia, [R] will order some. (Field notes, O).

As briefly identified in Chapter Six, during consultations (which constitute a large part of the day in a small animal practice) veterinary surgeons interact primarily with clients and with receptionists regarding charging the client. All charges are sent electronically from the veterinary surgeon through to the reception desk, where the receptionist can charge the client and dispense the appropriate drugs (previously checked by a clinical member of staff). Veterinary nurses may be called upon to hold an animal during a consultation, or may interact with a veterinary surgeon if an animal is admitted during a consultation. These interactions are very brief in order for the veterinary surgeon to return to the client.

## Operations

The following example from Field View Vets shows the typical interactions between a veterinary surgeon (VS1) and a veterinary nurse (Amber) when preparing for the day's operations. It also includes information on the two other veterinary surgeons working that morning (VS2 and VS3).

"Do you want to do the tail amputate next?" [Amber] asks [VS1], "the other spay don't you think?" she replies. "It didn't arrive" [Amber] informs her, and they are thankful as have no space! "Lost track of what we've got" [VS1] says, [Amber] tells her [VS2] is doing an x-ray and [VS3 has] got one too plus the anal dog (Field notes, O).

Operations form the temporal dimension of veterinary surgeon-veterinary nurse IPW/L. During this time the observations suggest that veterinary nurses make the most of the veterinary surgeon's attention, as described in the following section.

## Interactions with Receptionists

Veterinary nurses and receptionists are in constant contact when they are both on site. Veterinary nurses frequently help on reception, or receptionists are required to find a veterinary nurse to answer a question regarding a phone call from a client. In addition to being a go-between for clients and nurses, receptionists are frequently a go-between for veterinary surgeons and veterinary nurses who, for efficiency, leave a message or a note with reception for a member of the other profession. In this case, the increase in use of receptionists can cause a reduction in face-to-face interaction between veterinary surgeons and nurses. Administrators, as identified above through Christina and Rebecca's quotes, are in contact with most people throughout every day.

### Flowchart of Opportunities

A very basic schema of the tasks and locations of the four main professions during a typical day is shown in Figure 23. This figure is included to demonstrate the spatial and temporal opportunities for IPW/L, as opposed to being a truly accurate reflection of the various roles of the professions.

	Veterinary Surgeon	Veterinary Nurse	Receptionist	Admin
08:00		Arrives – admit patients, prepare	Arrives – admit patients	
09:00	Arrives - Consultations	for operations, VN consultations	Book in clients, calls	Arrives – emails, finances,
10:00				complaints, suppliers,
11:00	Operations	Operations		meetings
12:00		Lunch (Staggered)	Lunch (Staggered)	
13:00	Lunch	Lunch (Staggered)	Lunch (Staggered)	Lunch
14:00	Notes, Preparation	Cleaning, emails, autoclaving,	Book in clients, calls	Emails, finances, complaints,
15:00	Consultations	discharges, VN consultations		suppliers, meetings
16:00	Break	Leaves		
17:00	Consultations			Leaves
18:00			Cleaning	
19:00	Leaves		Leaves	

Figure 23. Time plan of locations and tasks for a typical day. Key: blue – front of house (reception/consulting room), purple – out back (prep room, operating room), orange – office, green – off site.

### Operations' Knotworking Division of Labour

As can be seen, operations constitute the optimum spatial and temporal opportunity for IPW/L specifically between veterinary surgeons and veterinary nurses, the main

focus of this project. Operations may be considered reminiscent of knotworking. Chapter Five explained that Engeström's knotworking relates to members of different teams coming together for a specific task; however the concept can also be useful in considering members of different professions who come together for a single purpose and then un-form. According to Engeström's knotworking there is no identifiable centre of control within the knot. Within veterinary practices, as the hierarchy section above relays, the veterinary surgeon maintains the point of control in most situations.

Within any standard operation, a sequential division of labour was seen. This division of labour between veterinary surgeons and nurses, for the object of neutering an animal, can be seen as a flow chart (Figure 24). Prior to the first step, the animal has been admitted, most likely by a combination of a receptionist and a veterinary nurse, and has been put into kennels by a nurse. After the final step of the flow chart, the animal recovers in its kennel, while being checked upon by the veterinary nurse. A receptionist speaks to the owner later in the day and asks the veterinary nurse to advise a time for collection. The veterinary nurse discharges the patient and speaks to the client regarding post-op care. The veterinary nurse will also see the animal and client again for a post-op check a number of days later. The flow chart has been reviewed by a veterinary surgeon and veterinary nurse within the RVC to aid validation. It has the potential to be employed for interprofessional education, as conveyed in Chapter Nine.

<ul style="list-style-type: none"> <li>• VN prepares operating room checking that it is clean and empty. Checks anaesthetic machine</li> <li>• VN sets up a tray <ul style="list-style-type: none"> <li>○ Patient's forms, record of drugs to be administered, anaesthetic record</li> <li>○ Makes labels for syringes</li> <li>○ Draws up drug doses, as per those prescribed by VS</li> <li>○ Draws up reversing agent</li> <li>○ Instruments including endotracheal tube(s), scrub solution, eye lubricant, laryngoscope and IV catheter supplies</li> <li>○ Additional forms and instruments for example for microchips</li> </ul> </li> <li>• VS performs clinical examination; checks heart</li> <li>• VN or VN+VS administer pre-med in kennels</li> <li>• Wait for pre-med to take effect, 15-30mins dependent on drug</li> <li>• VN takes animal into prep room from kennels</li> <li>• VN holds animal while VS clips leg, VN/VS place IV catheter</li> <li>• VS induces anaesthesia</li> <li>• VN holds animal's head while VS intubates trachea</li> <li>• VN turns on anaesthetic machine with oxygen and anaesthetic agent under guidance of VS, ties tube in place</li> <li>• VS scrubs up, gowns up and waits</li> </ul>	<ul style="list-style-type: none"> <li>• VN clips area for operation, surgical prep</li> <li>• VN monitors and records anaesthetic</li> <li>• VN takes animal into operating room</li> <li>• VN continues to monitor, open instrument packs, passes instruments, draws suture material</li> <li>• VN turns off anaesthetic agent</li> </ul>
<ul style="list-style-type: none"> <li>• VS operates, guides anaesthesia, checks VN is ok</li> <li>• VS indicates operation almost complete</li> <li>• VS/VN gives reversing agent and pain relief where indicated</li> <li>• VS/VN discuss ongoing care e.g. considerations for recovery, discharge medication and follow-up appointment</li> <li>• VS leaves and gets cleaned up</li> <li>• VS/VN continue to manage recovery</li> <li>• VS writes notes on computer</li> </ul>	<ul style="list-style-type: none"> <li>• VN cleans animal, monitors recovery</li> <li>• VN takes animal back to kennels</li> </ul>

Figure 24. A standard operation – e.g. cat spay

During operations, intra- and interprofessional conversations regarding the schedule for the day frequently take place between veterinary surgeons and nurses as shown in the field notes at the start of this section. Often the lead veterinary nurse will designate the order of operations, and the veterinary surgeons will chose between them which ones they would like to perform.

## Veterinary Nurse Intraprofessional Teamwork

The intraprofessional working of veterinary nurses during operations is a remarkable example of team or distributed cognition. They operate as a well-oiled team, knowing without asking what needs to be done, and what would help the other nurses. This was never more evident than watching Claire, the head nurse and another experienced veterinary nurse during my first day at Cedar Vets:

There is excellent teamwork between the nurses with one picking up what the other hasn't yet done, instinctively it seems (Field notes, O).

In follow up observations I asked the second veterinary nurse about their working relationship. She told me that Claire is the boss, of both the nurses and the vets, so she organises what happens and they all work around that. She explains that the nurses tend to take charge of a patient, and so it is often that that defines who does what. Jenny described the nursing team at the Ash branch:

we all work really well together umm, you know share jobs, help each other... what I find here is we kind of work as one, so if [VN] is doing the anaesthetic or something just instinctively you know I'll come out and set up the kit, or scrub for her and she'll do the same for me, so umm yeah we are quite in tune with each other (Jenny, I).

The slick teamwork of nurses was also evident at Field View Vets and Amber volunteered this comment:

we seem to know almost what everyone else is thinking, what's been done and what's not been done (Amber, I).

This ability comes, it seems, from their desire to help each other and make the day run smoothly and is undoubtedly assisted by getting to know how each other works over a period of time. Helping each other out was seen most evidently between the nursing intraprofessional team. However it was also described within interprofessional relationships, especially between veterinary nurses, receptionists and administrators:

we all support each other really well, even in our different roles, where if I'm stuck with an insurance issue, I can go and ask [A], the practice branch manager and she'll help me, the same as if she was stuck with, I don't know, something like a consent form or something, she'd come through and ask us.... The stuff that she does out here isn't even in her job description but she'll come out and help us because we work as a team and we are all friends, we help each other out.... [Receptionists] will also come through and help us if



there is only one of us here umm we say can you give us a hand please one of them will come straight out (Jenny, I).

This quote indicates that even when professions understand each other's typical roles, they are able to ask for help outside of those roles where lack of manpower necessitates.

### Nursing Handovers

At the Moor branch of Field View Vets there are nurses 24 hours a day organised by a night shift rota. There are two main handovers, at 6.30-7.00am when the night nurse hands over to day staff and twelve hours later when the day staff hand back over to a night nurse. The kennel nurse may also change during the day. This turnover of staff was identified as a potential source of miscommunication or misunderstanding. However the main instance I observed between the head veterinary nurse and my participant Kimberly was very successful:

They move to the ... patient... [VN] shows [Kimberly] the list on her door, its long. [Internal phone call] Back to the dog, [VN] talks [Kimberly] through, nothing on ex lap, inflamed, haemorrhagic d++, none more since theatre, [VN] looks up when that was, second sheet, vomited, none more since, she's deaf so not keen on face wiping, not helpful while feeling sick, Serenia at 3pm, on vetagesic, second hr early, everything else brought forward. Was calm, then a bit down, had an episode of panting. The fluids are a bit confusing, [VN] can't quite read a number but thinks it's a 6, it was that when it went into theatre, 158ml over hr, ... then turned down to 3 x maintenance. She thought she looked paler, but probably not. Temp normal, has heat pad. Continue with this. They briefly remember another case. Obviously no food, not thinking she's contagious, but using gloves because ... puppy hasn't had her vaccinations yet. Owner is very worried, [VN] tells [Kimberly] she can call them whenever. Explains about the fluid bags, this one only had 400mls as some was used to flush out. You've got Mr [Paul] on call [VN] says, oh no [Kimberly] jokes! [VN] tells her [Paul] will be back to check on dog (Field notes, O).

### Opportunistic Interactions

While the veterinary nurses spend a significant portion of their day together, the observations indicated that the nurses are opportunistic in their interactions with veterinary surgeons. During operations the veterinary nurses took the opportunity to discuss other cases and to suggest that the veterinary surgeons check on any they

are concerned about. Starts of shifts and times when the veterinary surgeon brings an animal out to the back for a blood sample, for example, are also opportunities for the nurses to speak to the vets. In general the veterinary surgeons were amenable to being approached in an opportunistic way, for example at Field View Vets I observed the following:

George comes in and mentions to Claire that there is a [dog] which needs blood tests in the reception. While George is here Claire mentions cat with big stomach, George takes note of this and says ok we'll have a look into it (Field notes, O).

Kimberly (VN) described the situation as follows at Field View Vets, Moor branch:

we do ward rounds in the mornings, or as soon as a veterinary type walks in, you have to collar them, so inpatients in the morning and then generally we'll do one lunch time and one before they go home and obviously if, it's a lot easier here but if we need them again throughout the day they are normally you know on site, so we can sort of get them on board (Kimberly, I).

Later on during the interview, which I conducted out of hours, a veterinary surgeon arrived to see an emergency patient. Once they had treated the animal they came through to talk to Kimberly. Kimberly immediately took the vet through to the kennels to ask her to check on an inpatient before the veterinary surgeon could leave again.

## Out of Hours

As in Kimberly's example, out of hours working is another time when interprofessional working is prevalent. At Field View Vets a veterinary nurse is on site at the Moor branch 24 hours a day. During out of hours times, they answer all phone calls. Their job is to then direct the call to the appropriate vet who is on-call that evening. There is no element of triage. As my field notes state: 'I ask [Kimberly] about the system and she says booking appointments is a no, but anything else really they pass on, they are like a phone service – even if not an emergency as the owner may choose to do it out of hours anyway' (Field notes, S). Small animal veterinary surgeons can utilise this contact to check on the patients under their care:

Emergency Line Telephone Rings. Small animal call 11.58-13.56, [Kimberly] ... calls the on-call vet [VS]. [VS] while on the phone asks for an update on the inpatients, [Kimberly] tells her how they are doing, e.g. being calmer, tells her about the new puppy that [VS2] operated on at the start of our evening tonight ->17.40 (Kimberly, I).

Although the out of hours message system depicts only information sharing, it does demonstrate how the veterinary nurses are linked to some of the farm and equine veterinary surgeons:

Phone rings ... The call is a cow with nosebleed. While [Kimberly] notes the details, [student VN] finds the client on the computer. [Kimberly] calls [VS], the on-call farm vet (Field Notes, O).

If it is a small animal call, there is the possibility that the veterinary surgeon will ask the client to bring the patient into Moor, as described in the example above. In this instance, the relationship between the veterinary surgeon and the veterinary nurse, the only two people in the building, is vital. Both veterinary surgeons and nurses at Field View Vets identified this as a prime example of interprofessional working where the veterinary surgeon makes full use of the skills and knowledge of the nurse and 'bounces ideas' about with them. This appreciation of the veterinary nurse's input is explored fully in the second part of this chapter.

### Farm Animal and Equine Departments

So far this section has concentrated on the interprofessional working within small animal practices or branches. There is also interprofessional working occurring within farm animal and equine branches. This primarily consists of veterinary surgeons and receptionists. Veterinary nurses are frequently utilised for doing blood tests and cleaning farm clothes; however truly interprofessional work such as going out on visits together is relatively rare. One veterinary nurse told me during observations that although much of the nursing course relates to equines, the equine group at Field View Vets are reluctant to employ their own equine veterinary nurse (ERVN), but they do occasionally use a nurse if they need an extra pair of hands.

Receptionists within the farm and equine buildings are an integral part of the team. They are frequently in contact with the veterinary surgeons via radios or telephones and are always aware of where their veterinary surgeons are. An essential part of the receptionist's duties is to organise the visits that a veterinary surgeon will make in any one day. Their ability to structure the vet's day was impressive. Receptionists' organisation of veterinary surgeons is explored again later in this chapter.

This section on timing of interprofessional working relates to the ad hoc day to day work within a practice. Both veterinary practices however were also developing ways to improve the practice, several of which involved interprofessional teamwork.

## IPW/L in Formal Infrastructure

Veterinary practices have a culture of veterinary surgeons as the decision makers. This still largely persists on a business level, with all partners and directors in the two cases being veterinary surgeons, and on a clinical level with much of a veterinary nurse's work still being under the direction of a veterinary surgeon. Whether through design or as a coincidental result, however, formal settings whereby IPW/L and joint decision making occur are increasing in frequency. Cedar Vets recognise that their staff are a major asset and can demonstrate that they are trained and motivated through their award of Investors in People (IIP) status. During the process of acquiring the status, Cedar Vets were encouraged to include a range of individuals in their management meetings. Alongside the senior partner and other partners, the practice manager and deputy practice manager (HR), and the practice head nurse, Claire, are now included. Claire joked that they must have thought that she has an opinion on everything anyway, so they might as well invite her in! She described her initial reluctance due to the desire to purely nurse, but that this has evolved into enjoyment based on her ability to contribute to processes, staffing, new drugs and so on. Clinical effectiveness meetings at Cedar Vets also involve all clinical staff and have had successful and rewarding results, such as a change to the protocol for rabbit general anaesthetics which has produced positive health outcomes for patients.

Field View Vets is undergoing an Accelerator Course for practice growth which involves workshops with an external facilitator. During my interview week the directors, HR Manager and practice head nurse were involved in a workshop to explore personalities and how they affect how a team works together. These sessions will also involve the new head receptionist as she begins her role. Another new initiative, the Rep Group, was formed from volunteers from each of the departments in order to share best practice. Therefore all professions and all species specialisations are included. The logistical challenge of holding a meeting with these 14 individuals however is not insignificant. Individual branch meetings are

also held and therefore include members of all professional groups. I observed the immediate success of one of these meetings:

We look at the nice smart notice board [Meadow Branch have] got now, [the branch] meeting was yesterday and one of the things they talked about and has been done already is the [Put to Sleep] list and who will do it and when (Field notes, S).

The inclusion of professions other than just veterinary surgeons in these high status meetings promotes the concept of valuing everyone's opinion and input.

## Interprofessional Working and Learning: Facilitation

### Trust and Value

#### Trust

The word 'trust' was selected for this title as it is a direct interview quote from three veterinary surgeons and three veterinary nurses. While one veterinary surgeon suggested that placing trust and letting go of control can be a challenge if you are a perfectionist (especially for young veterinary surgeons), they remarked that for them it was not a problem.

Trust does have to be gained however as Claire described:

I mean obviously the vet, if they are new, then they have to learn to trust you and to know what your kind of working is as well and we need to trust them as well (Claire, I).

Once this trust is gained, veterinary nurses are incredibly helpful to the veterinary surgeons which they work alongside. As Sofia explained:

the nurses are excellent at doing you know [temperature, pulse, respiration]s and checking and all of that and you trust what they say and you know, they'll give you brilliant accounts of any sick inpatients (Sofia, I).

The veterinary nurses all remarked how the veterinary surgeons they worked with trusted them to do their job and to pick up on potential problems with the patients. As Jenny stated "they trust us enough to work on our own initiative" (Jenny, I). Being awarded trust was appreciated, Claire referred to the freedom that she felt at

Cedar Vets because of the trust that the veterinary surgeons put in her which allowed her to enjoy her work.

One veterinary surgeon, Paul, started by saying that he hoped they put a reasonable amount of trust in the veterinary nurses. He went on to consider the possibility that they put too much trust in their student nurses or newly qualified nurses, asking them to do things which the head nurse considered too advanced for them. Evidently the amount of trust needs to be balanced with the nurse's abilities and qualification level.

It appears that the veterinary surgeons in the case study practices have trust in the veterinary nurses they work alongside. Trusting the nurse to do their job extends to trusting them to bring to the veterinary surgeon's attention any issue that warrants it. George recognised this type of behaviour in his interview:

having excellent experienced RVNs who will sort of say have you seen this cat, have you come and looked at the way it's behaving, or you know I'm just a little bit worried about this case, I'm not sure you know things are sort of going right, can you have a look at this, and you know they are an excellent, an excellent prompt to me because I think they pick up things that I'm, you know I may well miss (George, I).

### The Value of Veterinary Nurses

This leads us to recognise that veterinary surgeons value the opinion and the input of veterinary nurses, and indeed the other occupations. Understanding, valuing and utilising the knowledge, skills, attributes and thoughts of others, reinforces the notion of distributed cognition within the veterinary practice. For the whole practice to function, it requires all the different elements to work together. Subsequently there was a feeling of a team or even family ethos identified in most of the interviews as identified above.

Valuing opinions was witnessed during the observational and shadowing weeks at the two practices as the following examples show:

Claire mentions a drug, George says "I was also considering that", Claire says "2mg?" George agrees (Field notes, O. Cedar Vets, Redwood)

Hot hands and wheatie [VS] suggests for the rats, "yeah" [VN] says, "wheatie and then use it as a cradle", "yeah good idea" [VS] replies (Field notes, S. Field View Vets, Moor)

[VS] tries to find the [microchip] with the second reader, but she has it the wrong way up. [VN] tells her which end it is and that you have to hold it a certain way, she is showing her with the other one (Field notes, O. Cedar Vets, Willow)

Nothing still seems to fit the [rabbit anaesthetic] box. They try lots of permutations of different tubes in different ends, end up wedging one side and taping the other. [VS] wonders if the proper connectors are on smaller box, she finds it, they might be, but also taped. "What about just the tube in this one" [VN] suggests, "yes" [VS] says, "but we can't keep that side, it's like spaghetti junction". [VN] still thinks can smell gas, checks, still from connection. Tapes it again .... [VS] thinks ok (Field notes, O. Field View Vets, Meadow)

"How long can you keep dromadol drawn up?" [VS] asks, "can it wait a week?". "Just 24hrs" [Kimberly, VN] suggests, so they will keep it just for now. They talk how best to move [the dog].... They pop him in the consult room, he's quite awake ... "What else can we do [Kimberly]?" [VS] asks, as the dog is trying to escape already climbing up the door. [Kimberly] recommends he's in the safest place (Field notes, O. Field View Vets Meadow)

[Paul] does the drugs and says he will ring owners, 'and say what' he asks – '[pick up in] an hour?' but [Kimberly] replies either say 3pm (2hrs away) or we'll call (Field notes, O. Field View Vets Moor)

The observation of veterinary surgeons asking for a veterinary nurses' opinion, or appreciating their input was supported by statements in the interviews. Claire is involved in the management team at Cedar Vets and said:

I think [the management team] have had some disagreements, but it's never personal and they always take it on board, and you know, some things you know, you have to fight your battle, some things you win and some you don't and others you just think I'm not going to get involved in. But generally they are quite receptive to any sort of opinions or anything like that (Claire, I).

Paul couldn't praise the senior veterinary nurses at Field View Vets highly enough:

I can think of loads of clinical situations where ... the senior nurses are just invaluable... [VN1] has vast amounts of experience and probably has seen everything! So yeah there are times, certainly out of hours and things when you know they can be really useful for bouncing things off ... [VN2] probably could do 90% of the things I do on a, a day to day basis, they might not be happy about doing it but certainly umm certainly diagnostic type things like, ... their appreciation of ... what diseases might lead to those clinical signs you know are pretty good you know because they've seen it so often (Paul, I).

An appreciation of specific veterinary nurse's knowledge, skills and attributes and the ability of nurses to make life easier for veterinary surgeons were repeatedly mentioned in the interviews with veterinary surgeons. The veterinary nurses in turn valued when the veterinary surgeon told them their suggestion was a good idea. The ability to actually make a difference, to the case, and for the veterinary surgeon to have listened to them was especially prized.

Kimberly mentioned in her interview that younger veterinary surgeons were more willing to listen to a veterinary nurse when they are trying to share their experience. She mentioned a specific veterinary surgeon that made her feel like they were on a par. Kimberly qualified this statement saying obviously they are not really on a par, because she's not a vet, but we agreed that you could work together with a younger veterinary surgeon and make suggestions. This is perhaps in contrast to a comment made by an older veterinary surgeon who suggested that young vets can find it hard to relinquish control and take advice from veterinary nurses as indicated previously in this chapter.

### The Roles of Veterinary Nurses

In many instances, it was evident that the veterinary surgeons (consciously or not) and the practice as a whole, were making use of the full range of veterinary nursing skills, with nurses undertaking a variety of roles. Dentistry is an area where veterinary nurses can make an impact. Veterinary nurses are legally not allowed to carry out any extractions; however they can perform routine scale and polishes. An example of teamwork at Willow branch, Cedar Vets, follows. It shows the veterinary surgeon beginning the operation, checking the teeth and making the extractions while the veterinary nurse monitors, then handing over to the nurse at the appropriate time:

[VN] asks [VS] if she would like to do the scale and polish. [VS] responds not especially. [VN] says that she doesn't mind doing it and [VS] confirms that she'll have a look first and then [VN] can do it.... [VS] describes what she is seeing during the tooth extraction. It is a rotten whole tooth, nothing left. She says that she is going to take the one next to it out as well. [VN] has taken measures, she says out loud to the room "its 140 the heart rate. It's about 20 the rests"... [VS] asks [VN] to hold the skin back. She does so and [VS] responds "like that is perfect"... [VS] says she thinks nurses are more precise [at dentals], and says how it is a balance between clean teeth and how long the animal's under. [VS] asks [VN] to take over with scale and polish now that she has finished the extraction. [VS] comes to check how it's going. (Field notes, O).



The full range of a qualified veterinary nurse's abilities was not always utilised, however, with veterinary surgeons performing roles which a suitably skilled veterinary nurse could undertake. For example, in my field diary I wrote the following remark:

I wonder why [VS] is doing the nurse's dental. All the while they were saying 'nurse's dental', but none of the nurses ever seemed to be likely to do it!? (Field notes, O).

The veterinary surgeon in question had told the head veterinary surgeon that she was going to do the dental, the head vet responded that it's a nurses' dental, but if she wants to then it's ok. I do not know the reason for this division of labour but the nurses spent a lot of time during the day asking the head vet to undertake the dental (who refused) before the second veterinary surgeon began the procedure. It can be hypothesised that the nurses were too busy to carry it out by themselves; anticipating a veterinary surgeon would be quicker, alternatively, none of the three veterinary nurses on duty were confident at carrying out the procedure.

### The Value of Receptionists

The opinion and input of receptionists and administrators was also valued by veterinary surgeons and veterinary nurses within these embedded case studies. With regard to receptionists, the positive relationship between receptionists and veterinary surgeons was most frequently observed within farm and equine branches of Field View Vets. The equine building is quite small and is located slightly away from Pets and Farm at Meadow. It has an unmistakable horsey feel with even the receptionists wearing jodhpurs and boots. Both receptionists are featured on the practice's website, unlike any other receptionist at Field View Vets. They are depicted riding their horses. It is perhaps this knowledge of, not the clinical aspect, but the typical client's aspect of understanding cases that warrants their inclusion in discussions of cases. As Jim, equine veterinary surgeon, described:

I like to listen to [R1] and [R2] because at the end of the day they own horses as well umm you know and yeah ok they are not qualified vets, but they do own horses, they are effectively a client, so yeah you can talk to them and say what you might do or something and sometimes they've got some very good thoughts (Jim, I).

Their knowledge of the client base and local area was impressive. They were both able to coordinate a veterinary surgeon's schedule perfectly based upon the treatment required and the distances to the stables. Jim again confirmed that the

receptionists do a “sterling job of keeping [the veterinary surgeons] organised” (Jim, I). Olivia, the receptionist at the mixed branch, Orchard, also related organising the farm animal veterinary surgeons, or “bossing them around” (Olivia, I) as she put it! The role of receptionists is now wide and varying. Observations at Cedar Vets saw receptionists making marketing suggestions to the Practice Manager and being given the freedom to come up with their own initiatives regarding their work. For example the inclusion of Forget-Me-Not seeds with the condolence cards upon the euthanasia of a client’s pet. A receptionist’s object of activity, or motivation, can be considered to be the client or owner, as opposed to the patient or animal. This is not to suggest that receptionists do not care about the outcome for the animal per se, but rather that their interactions with the clients are more pronounced. Client care is therefore their forte and their ability to interact with clients was admired by veterinary surgeons and nurses. Different objects and abilities for the same overall outcome (client and patient care) can therefore be integrated within the team for beneficial results.

### **Administrators: Providing a Different Perspective**

Practice managers and HR managers have a significant impact on the directors or partners at veterinary practices but a less obvious impact on the day-to-day lives of veterinary nurses. The changing times of veterinary practices make the employment of an administration manager almost a necessity. Practices are becoming more perceptibly businesses and members of staff are requiring more in terms of work life balance, while there is the possibility of clients suing for less than satisfactory work. The directors and partners acknowledged that veterinary surgeons are not trained at human resources management and tend to have little interest in it, or time to consider it. Therefore, although it’s another individual on the payroll, the skills that administrators bring are now indispensable and take a lot of pressure off of the veterinary surgeons, especially directors/partners. Rebecca the HR Manager at Field View Vets especially noted how as her role has changed from PR to HR Manager, the directors have included her more and more in discussions. At first she felt somewhat uncomfortable and unsure giving an opinion in front of 10 directors, but many years on she considers it ‘part of the norm’ and believes they value her opinion, as they keep asking for it. Rebecca suggests that it is the different perspective that she can take on an issue, her ability to look at things from a different angle that is helpful to the directors in decision making. Different

perspectives or motivations can therefore be beneficial; however they can also be challenge to interprofessional working, as revealed in the following chapter.

The employment of several professions and occupations enables each to perform its original and ideal role, to make the best use of its skill set. In essence, practice managers and administrators allow the veterinary surgeons and nurses to concentrate on the clinical side of practice. Vets can vet and nurses can nurse. This was described by Rebecca:

the four of us [administrators] here in [Branch] we will deal with an awful lot so that actually downstairs purely can vet, nurse and and you know deal with those clients ...and do the veterinary side of things (Rebecca, I).

As introduced by Rebecca, the roles of administrators are vast. Rebecca sent me a list of her roles which she once created for her own interest. There are 27 bullet points which range from holiday authorisation to writing newsletters, dealing with the fleet of cars, amending the website and health and safety. The roles are likely to vary widely between practices as this occupation is new and unstandardised, in contrast to the professionalisation path that veterinary nurses are undertaking.

## Professionalisation and Accountability

Chapter One described the professionalisation of veterinary nurses. In summary a non-statutory register was brought in during 2007 which created 'Registered Veterinary Nurses' who were required to undertake continuing professional development and since 2011 may be held accountable for their actions and undergo disciplinary procedures for misdemeanours. The new Royal Charter in February 2015 has made it compulsory for qualified veterinary nurses to join the Register, although they may request to be removed from it, whereby they will no longer be able to undertake protected acts (Schedule Three). The protection of the title 'veterinary nurse' may be considered as the final step in the long road to professionalisation. However since February 2015, the RCVS are already considering veterinary nurses as a true profession.

## Lack of Impact of Policy Change

During the interviews I asked the veterinary surgeons and nurses about the ongoing professionalisation of veterinary nurses, and if this has specifically impacted on their working relationships, including levels of trust. Interestingly the participants reported that they had not noticed a great change in the way that they approached their work or how others worked with them. They commented that where there was trust and good relationships before the implementation of the Register and disciplinary procedures, there was still trust and good relationships now. Where there was no trust before veterinary nurses were recognised as a profession, there is likely to still be little regard now. This concept is exemplified by the following quotes:

I guess there's quite a bit of trust in our ability, umm which I think was perhaps probably always there to be honest  
(Amber, I)

the vets that valued what you were doing haven't changed. They understand what you do, appreciate what you do, and [1 second pause] I don't, I suppose to a point people that didn't probably aren't going to anyway (Kimberly, I)

I don't think it's altered anything (Paul, I)

It can be assumed that the two case sites in question were therefore trusting before the changes in legislation and remained so afterwards. It can be hypothesised that this is not necessarily the case in all practices.

## Nurses' Developing Roles

The veterinary nursing profession and how it works alongside the veterinary surgeon profession has undeniably changed throughout history. Rather than this culminating at the inclusion of the Register in 2007, the Disciplinary system in 2011, or the Royal Charter in 2015, it seems that the changing relationships have been a gradual affair. Chapter One portrayed the first veterinary nurses as assistants who cared for the dogs which veterinary surgeons treated. The role of the veterinary nurse has expanded enormously since that time. It has also experienced contraction for example with the onset of The Veterinary Surgeons Act 1966 (Schedule Three Amendment) Order 1988 whereby veterinary nurses were excluded from castrating animals (e.g. cats). The expansion outweighs the contraction however. Veterinary nurses are still the proponents for cleaning or sterilisation control and looking after the patients 'on the ground' on a day to day basis. However they also have

administration and managerial duties, run nursing clinics, are responsible for insurance claims, create care plans and assist with surgery. Veterinary nurses still tend to consider themselves as the caring profession, with welfare primarily the remit of the nurse. This issue is revisited in the following chapter regarding contrasting motivation and perceptions of cases.

Nurses are continuing to evolve, for example Amber described a new plan regarding veterinary nurses' roles at Field View Vets:

They are now trying to get ... all of the main qualified nurses here to specialise in a certain area, so ... like the vets have got their specialisations, that we will also have our own specialisations, makes us feel a little bit more umm well, professional I suppose which is yeah definitely changed from when I started (Amber, I).

The support of veterinary nurses to specialise is not limited to Field View Vets, although it is also not a global trend in the profession. There is the potential for increased IPW/L as veterinary nurses with specialised knowledge work alongside veterinary surgeons who may lack that knowledge, for example in exotic animals (reptiles/birds/etc). There is also the potential for conflict as the roles of veterinary surgeons may appear to diminish with veterinary nurses undertaking specialist activities, seen in activity systems as a contradiction between the traditional community and nurses' increasing division of labour. This is an area requiring future observation.

An understanding of roles is predicted to be important for interprofessional working and education. It is noteworthy therefore that lack of understanding of your own, or each other's' roles, did not arise from the data as a theme between veterinary surgeons and nurses (Chapter Eight notes a lack of understanding of receptionists' roles). Within these, apparently well-functioning clinical teams, it seems likely that roles were understood and were largely flexible where necessary. However, the nurses under study would like their role to continue to expand. Both Cedar Vets nurses identified a desire to undertake some minor surgery while both Field View Vets nurses indicated their wish to run more nursing clinics. The major challenge on an individual's ability to undertake these additional roles is time. Field View Vets' employ a veterinary nurse as the nursing consultations specialist; this enables the other nurses to fill their days concentrating on other aspects of nursing. This is an understandable business strategy, but limits the role of the individual nurses. It is unknown if the directors are aware of this difference between desired and actual

role. At Cedar Vets one nurse described the presence of veterinary students as a limiting factor to her being able to ask if she can do more surgery. It is vital that as roles expand, the trust also remains. As Claire suggests:

I think it's really good that we are accountable for our own actions, I really hope that in the future, nurses will be able to do things like cat castrates again, and sort of dentistry, ... not from a personal interest because I don't like it but I think [VN] is amazing at dentistry, ... just to be able to, to have that kind of trust in your nurses to say you know, right, you do that, give me a call if there are any problems or whatever (Claire, I).

### Accountability

The veterinary nurses all understood their new accountability; however felt that they were acting responsibly before the inclusion of disciplinary procedures for veterinary nurses and so have not changed. Kimberly described the accountability situation as a Catch 22, suggesting it is good that nurses are accountable for their own actions; there is less worry that if you made a mistake it would be a veterinary surgeon who would take the blame. However, she continued to say that veterinary surgeons should be responsible as nurses cannot do many things without their agreement. Although unable to pinpoint exact ramifications of the Register or Disciplinary systems regarding changing behaviours, it should be realised that both of these factors are still relatively new phenomena. There have been only three hearings of the RVN Disciplinary Committee to date. It is possible that as further nursing disciplinary cases occur and become public knowledge, behaviour of, and towards, veterinary nurses may again evolve. It remains true that those individuals abiding by the Codes of Professional Conduct, and working with others (both veterinary surgeons and veterinary nurses) who abide by the Codes will be unlikely to require any change in their behaviour towards each other.

### Support

Overall there was support from veterinary surgeons for the professionalisation of veterinary nurses in terms of accountability and increased roles. None of the veterinary surgeons expressed concerns over nurses becoming mini-vets or taking responsibility for roles that were once theirs. Although the nurses were quite keen to undertake more surgery or consultations, it is perhaps the case that there are few tensions in the division of labour in these practices and that the profession's roles are understood and respected. There were, however, differing opinions regarding

whether or not clients understood and appreciated the qualification and Registration level of veterinary nurses. Kimberly recalled reading an article in the VN Times (Green, 2014 REF) that stated a veterinary nurse should not introduce themselves as 'just the nurse', but instead as a qualified veterinary nurse. Evidently the veterinary nursing profession are working towards improving the general public's view of themselves and is reaching, and influencing, their intended audience.

## The Extended Veterinary Team

Interpretations of the case studies have thus far been limited to the practice team. An additional area of interest as emphasised in Chapter One is the extended veterinary team. These are occupational or professional groups related to the veterinary field with whom the core team members work alongside on a regular basis. Examples include specialist referral veterinary surgeons, animal behaviourists, farriers and animal charities. This concept is of interest because although the case under investigation is of a veterinary practice, there is contact between the team and the outside world with regard to day-to-day work. The SNA results provided little insight into interprofessional working between the core team and extended team. Some practices chose not to identify individuals they collaborate with outside of their practice. Others identified a small number of individuals; however the response rate for the SNA questionnaire by the nominated extended team members was low.

Case study interviews with small animal veterinary nurses and surgeons mirrored the lack of a concept of an extended veterinary team. There was some interaction with ex-colleagues, though this was socially based. Work related interactions primarily included insurance companies, drugs companies, referral vets and charities. While some veterinary surgeons indicated a close relationship with a referral vet, many of these types of interactions are likely to be superficial. It was apparent from the field observations however that members of the local charities (RSPCA or Cats Protection) do frequently visit the practice. They are in essence just a different type of client; one which increases the amount of paperwork necessary for their case.

Interviews with the large animal veterinary surgeon and receptionist indicated more interesting interactions. Jim, the equine veterinary surgeon, described his working relationship with equine para-professionals. For example a symbiotic relationship exists between veterinary surgeons and equine physiotherapists. The veterinary surgeon recommends clients to the physiotherapist on the understanding that the physiotherapist will “keep the vet in the loop” (Jim, I) with regard to any future veterinary treatment required. A similar relationship exists with farriers; however Jim suggests that they are less likely to refer the client back to the veterinary surgeon at the appropriate time. Jim has a tangible apprehension pertaining to equine dentists. While acknowledging that there are some “really good ones” (Jim, I) he also suggests that others are not so adept. In addition to their varying skill level, he also concedes that equine dentists and equine veterinary surgeons are vying for the same cases. He would therefore not recommend an equine dentist to a client. He relates this to foot trimmers in farm animal work; another occupation competing for work currently undertaken by veterinary surgeons. Jim finished this topic with a quandary:

equine dentists; I maybe see once a month or something and that would be for me to sedate a horse while they do the dental work. And generally you’re thinking if they’ve paid you to come out and sedate the horse why not pay for you to do the teeth as well!? Doesn’t quite make sense (Jim, I).

Olivia the mixed animal receptionist at the Orchard branch mentioned farmers in her extended team. They are more than just a client and she explains that the receptionists have a lot of contact with them. Christina (PM) and Rebecca (HR Manager) both listed several groups with whom they interact. These included suppliers, recruitment agencies, garages and advertisers.

Field View Vets is part of a collection of veterinary practices. Within the interviews with the six focus individuals from Field View Vets I asked about the influence that being a part of the group has on their day-to-day work. Five of the six admitted that it had little influence, or less than it should. The remaining individual was Rebecca who listed several ways in which she interacts with the group’s organisation. Three of the four veterinary surgeons/nurses had, however, been on courses held by the group. Jim and Amber both enjoyed their respective courses. As Amber confessed however, she still doesn’t know much about the group after her course, doesn’t actually know which practices in the area belong to the group and doesn’t plan to stay in contact with anyone she met during the course. Belonging to the group does



offer several practice and client benefits, such as, the production of economical but professional client information sheets and newsletters and assistance with the ability to buy cheaper drugs and therefore make better offers to clients. While the group does aim to collaborate in order to improve clinical excellence, business management and training for example, it seems to have advantages primarily for management level individuals and the practice, as opposed to addressing best practice of each team member.

In summation, certain members of a veterinary practice core team do have interactions with veterinary related professions and occupations outside of their practice. Others have very little interaction outside the core team. It was hypothesised in Chapter Five that external interactions may be indicative of knotworking; however the interactions that take place are limited, such as referring clients or ordering drugs as opposed to the decision making project work suggestive of knotworking. The extended team therefore cannot be compared to the day-to-day work within the core practice team.

This thesis therefore continues to focus on the core veterinary team. As demonstrated throughout this chapter, and suggested in previous chapters, for a veterinary practice as a whole to perform successfully as a business, the knowledge of all its professional groups needs to be integrated. This is a clear example of distributed cognition as explained in Chapter Five. Where expertise and cognition are distributed, there lays the potential for problems with regard to sharing expertise with the appropriate people, overcoming differences and avoiding errors.

## **Interprofessional Working and Learning: Challenges and Errors**

IPW/L is not necessarily easy or simple. In the following chapter the issue of different professional perspectives and examples of when things go wrong will be considered. Through the deliberation of factors influencing good interprofessional working such as trust, structure and distributed cognition as detailed in this chapter, along with challenges to interprofessional working as highlighted in the following chapter, contextual recommendations for undergraduate interprofessional education can begin to be formulated.

**Chapter Eight: Interprofessional Working and Learning:**  
**Challenges and Consequences of Organisational Structure and**  
**Contrasting Professional Motivation**

## **Introduction**

The previous chapter addressed the sub research question regarding factors which promote and facilitate veterinary IPW/L. It was demonstrated, through both field notes and vignettes from observations, and quotes from interviews, that IPW/L is influenced by both the traditional profession-based hierarchy and an experienced-based hierarchy. Certain individuals were shown to be important in information and knowledge transfer and were often represented as boundary crossers. The spatial and temporal dimension of IPW/L was also considered, and highlighted that the interprofessional working between veterinary surgeons and nurses occurred primarily during operations and during opportunistic events. The chapter also introduced how trust and valuing the opinions of members of other professions can facilitate interprofessional working and learning. It identified that different perspectives can be a benefit to decision making. This chapter goes on to explore how different perspectives and motives can also be a hindrance to interprofessional working. The previous chapter also considered the accountability of registered veterinary nurses alongside the historical changes in the professions.

In this chapter the issue of why interprofessional conflicts might arise, and how they could be, or are, resolved is deliberated. This chapter has three sections. The first section revisits the organisational structure (hierarchy and temporal/spatial dimensions) with a focus on how this challenges IPW/L. As with the previous chapter, activity systems and the CHAT framework will be useful in structuring the analysis while maintaining a focus on the interprofessional interactions. A major aspect of the activity system is the object of activity, as introduced in Chapter Five. The object of activity is the purpose of an activity, which provides the motivation to carry it out. The object of activity is not always shared between two or more professions, and different interpretations of the same object of activity, due to different professional values and guidelines, may also exist (Daniels et al., 2007). Individuals within a veterinary practice will come together to work on a task, such as an operation or decision making with regard to a case. They, therefore, work in a knot which forms and then unforms as identified in Chapter Five. It is possible that the different team members will have different motivations for the activity, and may

therefore view the care required for the case differently. This dissonance in desired care could lead to challenges in working interprofessionally. The second section of this chapter therefore considers professional motivation and how this can differ in the veterinary field. The prime example here relates to pain relief. The third section considers the results of failed working, in terms of examples of error. Distinctively it goes on to consider blame. The errors are demonstrated to be primarily related to communication issues, as opposed to clinical medical errors. The themes and the subsequent sub-themes used in this chapter were again issues which were empirically identified in the data through inductive reasoning. The different professional motivations were primarily brought up by participants in the interviews but were also seen during observations. The errors however were mostly identified through direct observation, occasionally being signposted by the participants who noted their disappointment that I had observed a breakdown in communication.

The two case study sites and 12 focus individuals within the cases have been extensively described in previous chapters. The introduction to Chapter Seven provides a useful summary table. Vignettes, field notes and quotations are again utilised to provide the reader with an understanding of the veterinary practice world. Two vignettes are now presented to introduce the chapter and highlight the issues under reflection. Examples of errors will not be attributed to a case or individuals.

The first vignette details the discussions surrounding a dental operation on a dog. The three veterinary nurses clearly wanted pain relief to be prescribed. However, the veterinary surgeon in charge, a male senior member of staff, said that it was unnecessary. A young female veterinary surgeon also questioned the lack of pain relief at one point, but carried out the operation without prescribing the drug. Drug names are given for accuracy, and explanations provided in square brackets.

#### Vignette One

##### **Field View Vets Day 16, Meadow Branch. General Observations.**

**A dog has come in for a dental operation. The dog is given a sedative by VS1 when it arrives. VS1 then leaves the dog for the nurses to undertake the dental procedure on – it is a scale and polish and therefore under their remit. The nurses repeatedly asked VS1 to carry out the dental, however he**

**persisted that it was a nurse's dental. In the end VS2 leads the operation.**

[VN1] starts to set up drugs for the dental dog... [VN1] checks with [VS1] when ACP [a sedative] was given to the dental dog, an hour ago, she asks about more drugs, vetergesic [an analgesic or pain relief drug], and he says he "didn't plan for vetergesic..." He says it's "just a scale and polish", so no vetergesic or synulox [an antibiotic]. Just propofol [an anaesthetic inducer] [VN1] checks? Yes. ...

[VN2] checks with [VN1] about getting dental ready, yes, [VN1] tells her about the drug plan *(or lack of!)* [Observer comment]....

[VS2] asks about dental just having ACP, no vetergesic, [VN1] explains it was [VS1]'s suggestion, they say as been a while may need more. [VN1] asks [VS2] if she should draw up some vetergesic for the dog in case, yeah, can't see why not, definitely if it's not very sleepy [VS2] replies. [VN1] checks and reports that it's still quite sleepy but half sitting up. If you think it's calm enough to get an IV in then its ok as it is [VS2] says. Shall I draw up more propofol [VN1] asks, and [VS2] certainly agrees.

[VN1] asks [VN2] if [VS1] is still here, she wonders if there is a reason why had pre-med only with owner. [VN1] tells [VS2] about dog sitting up...

[VN3] notes about the crossing out of drugs, [VS2] says will need synulox, not the others. [VN3] ... gets the synulox.

The dental is finished so I go to have lunch in the office with the girls. [VN3] comes in a little later to say about the dental dog, asks why it wasn't given vetergesic, [VN1 and VN2] say because [VS1] didn't say to.

The second vignette includes the account of an error, whereby a dog's ears were cleaned before swabs could be taken, and further to this that the swab that was collected was in the wrong format. Comment is made with regard to notes, the board and verbal discussions prior to the case. The mistake was made due to a failure of all parties to check written information in a timely fashion, or to share the task information, and due to forgetting, or not listening to, oral instructions.

## Vignette Two

### **General Observations.**

**A dog requires an operation and while under sedation his ears will be swabbed and checked. The veterinary surgeon in charge of the case, VS2, is not the one carrying out the operation. VS1 undertakes the operation and is assisted by VN.**

[VS1] comes in, [VN] tells him the extra things, like checking skin that [VS2] wants, “before the op?” she asks, after he says. [VS1] puts Classic FM on to annoy [the nurses]! ...

[VN] gets the [dog] .... They talk about current news... [VS1] checks [VN] is happy before getting [VS2] who wants to check something before they get started....

“[VS2] will be a moment so we can clip ear” [VS1] says, “do you want a swab down first?” [VN] asks, that’s a good idea he says. She clips. They chat .... [VN] checks on level of clipping.... They talk about level, and breathing. [VS1] goes again to check if [VS2] is free... “We’d better swab that one, [VS2] is a bit embroiled” [VS1 reports].... [VN] checks which drape he wants, he says bitch spay, that is what I was thinking she says, though she admits that she’d put everything in just in case! ...

They expertly put the ear through the drape hole ... After getting drapes all ready and gowning up [VN] moves onto monitoring, [VS1] checking she’s ok then singing away. He starts the op. ... Talk about holidays...

They have finished the surgery, [VS1] packs up instruments, [VN] cleans the dog. [VN] asks [VS1] “are you checking the anal glands?” isn’t [VS2] coming” [VS1 asks], she’s consulting [the nurses] say. ... [VS1] gets gloved up to check glands. Checks the board. He notes they do want swab from both ears, I’ve just cleaned it [VN] says, “numpty” he calls her, we had this conversation before we knocked him out! He asks what’s she’s used and will swab anyway...

[VS2] comes in, she seems to think they would have waited for her, but [VS1] had said they were starting. She wanted the ear thing on slides not swabs in tubes, says she thought she had written that on the paper, never mind she says and goes to take a look at the dog.... [VS1] calls [VS2] back, says it’s a shame about the ear swab dog, [VS2] says it’s ok.

The errors relayed in this chapter will not be attributed to either site. It is not my aim to name and shame the individuals or the practice involved. We can only learn from errors if they are shared and reflected upon, and it is not my intention to apportion blame.

## Organisational Structure

### Hierarchical Organisation of Work

The previous chapter identified that hierarchies are promoted within veterinary practices. The hierarchies are largely based on the profession to which an individual belongs, but may be more fluid to include the relevant experience of an individual when choosing someone to approach for help or advice.

### Information Cascade

An example of this fluidity is Head Veterinary Nurses who are involved in managerial meetings. The structure of Head Nurses, and appointed leaders of any professional group, does however have the possibility for creating information bottlenecks when information flow is considered. The HR Manager, PM, Head Nurse and Head Receptionist (where they exist) are charged with significant amounts of information dissemination and there is the possibility that they may not provide information in a timely manner due to overloaded schedules or even through choice, as identified in Chapter Five. One method to assist in information flow is the use of memos and emails, as opposed to face to face contact. As Rebecca from Field View Vets explains:

we do use memos as well, it's just determining and thinking through what's the best way for what we are trying to get across and to the group of people we are trying to get across to, if it's everybody, and you know, not everybody looks at their email addresses (Rebecca, I).

Rebecca tells me once a memo is put up, it is then up to the individual to read it and they are encouraged to initial each memo after they have read it. She acknowledges that just because something has been distributed does not mean that everyone has read it. The use of emails for communication varied between the practices. Cedar Vets used emails extensively while Field View Vets used them rarely, partly because not all staff had email accounts. At Cedar Vets, emails were seen to aid

communication regarding cases when a veterinary surgeon was off site. They were however generally thought to be overused. George demonstrated concern that opinions were hard to communicate via email, which should instead only be used for facts such as the timing of a meeting. Jenny described emails as one of her bugbears and prefers face-to-face or telephone communication, where you can get answers straight away and can ask questions to clarify matters. Both individuals acknowledged, therefore, that care must be taken when using emails so that errors are not made due to misunderstanding.

### Key People

The specialised importance of these key individuals means that if they choose to leave the practice there is currently no one who can replace them, as they have developed their own role specific knowledge over the years. In both practices, the issues of future proofing and contingency plans were either seriously highlighted or joked about; either way they were clearly on the mind of some members of the practice.

### Limited Reciprocity

Reflection upon the SNA results in Chapter Four reminds us that reciprocation studies indicated that if a veterinary surgeon asked a veterinary nurse for advice, the veterinary nurse was likely to reciprocate. However the reverse was not necessarily true. This vertical flow of advice indicates an overall hierarchical position of veterinary surgeons above veterinary nurses and the other professions investigated. The potential drawback to this type of knowledge flow is that members lower down the traditional hierarchy may have knowledge that is beneficial to veterinary surgeons, for example, but which is not utilised. This important concept is explored again in Chapter Nine. The observations demonstrated that while true, this was a generalisation, and certain individuals were treated based more on their experience than their profession. SNA results also showed that for other interactions, for example information, there was a more horizontal structure, or even administrator-dominant structure.

### Status

A driving factor of the overall profession based interaction structure may be the status differences of professions, ordered in a hierarchy, as exemplified in this quote from Amber:

But ultimately he [VS] does, you know I do think that he does know what he's doing and that if he does think we ought to do it then we ought to do it! He's the boss at the end of the day! (Amber, I).

Other phrases heard in interviews and observations, albeit rarely, included 'being the peon at the bottom of the pile' (veterinary surgeon, I), 'dogsbody' (veterinary nurse, I) and 'we are just employees' (field notes, O).

## Summary

In summary, it is apparent that a profession based hierarchy can be beneficial for organisation of the practice, including apportionment of line manager responsibility and information dissemination, as well as to formulate the division of labour, part of which is required by law. However, refusing to ask someone for advice, because they are not part of your own profession, creates a limitation in knowledge flow. This thesis supports the notion of valuing the knowledge of anyone with the relevant experience. The negative phrases regarding subordination also add another element to the 'family team' depicted in the previous chapter.

## Temporal Dimension of Work

The previous chapter depicted, especially in the schema in Figure 23, that veterinary surgeons spend a substantial period of their day in their own consulting room or off site. At Cedar vets they travel between branches and, unlike many of the receptionists and veterinary nurses, the veterinary surgeons regularly left the practice for their lunch break. In some Cedar Vets branches, veterinary surgeons are only on site during parts of the day for consultations. Veterinary surgeons being off site was identified as a challenge by the Cedar Vets Practice Manager, who said it required excellent hand over communication between the veterinary surgeons and the veterinary nurses to maintain continuity of care to clients:

I think one pitfall, but it's not, there's not another option is when the vets go for lunch, they leave site. And you've got cases, they hand over to the nurses so that's how we get around it, umm, but if the (1) reception take a call it's just, it's umm (1) sort of exceeding the client's expectations but also maintaining it, with if the client calls up for their animal and the handover has been done with the nurse, that's fine, but it's, in other industries it's dealing with emergencies, we've had it so many times, umm it's how it's dealt with on the phone. So that's reception, umm it's you know when someone is in panic it's easy they say this has happened and then they hang up, and you have no details, you don't know what to expect. You don't know, if you've not



got a vet on site, you don't know how to deal with it, if they rang a surgery where there isn't a hospital and oxygen, yeah that's the sort of

TK: Yeah that sounds like it would be challenging

Yeah. So we try and have policies in place at each branch so that it's clear for staff what to do and not wait until that has happened yeah, but what to do in that circumstance because again we've got so many new staff in (Christina, I).

George was especially good at checking on the situation and offering veterinary nurses the opportunity to notify him of anything prior to leaving the building. Field notes report:

George checks its ok to leave his cat & to leave [VN] to finish up and heads off to his meeting (Field notes Day 2, O).

George checks all is ok with his rabbit then heads upstairs reminding Claire that she has blood glucose to do later (Field notes Day 11, O).

Branches being without a veterinary surgeon for periods of time was a necessity. Samantha, a receptionist who frequently runs the Cherry branch on her own, thought the current situation of staffing was appropriate for the level of clients that they receive at the branch. One of the nurses joked it was actually easier to work when the veterinary surgeon is off site:

some of [the vets] are so pedantic it is easier when they are not here! So yeah, if we just have our instructions – what time do they want the meds, what meds they want and then we can just get on with it and it's a lot more chilled when the vet is not here (Jenny, I).

### New Occupations as Go-Betweens

The rise of new occupations can be considered as a factor responsible for reducing veterinary and veterinary nurse interaction. For example, the professions may go through receptionists or administrators rather than approach each other directly; presumably due to receptionists' continued presence, and in an effort to save time. An example of which is as follows:

[Branch Manager] then goes into the consult room to ask [George] to sign forms.... [Branch Manager] takes the signed forms through to [Claire]. This seems like a separation of vets-vn working (Cedar Vets, O).

## Summary

Due to the limited time that a veterinary nurse has to work with a veterinary surgeon during a typical day, their interactions become more significant and answers are required quickly. It may be frustrating for veterinary nurses to be on site and have to wait for the veterinary surgeon to return their call or email, as identified in a quote from Jenny above. As explored in Chapter Seven, nurses develop tactics of opportunistic interactions to ascertain the information they require from the busy and absent veterinary surgeons. I do not wish to suggest that veterinary surgeons leave sites to avoid their work; it is often a necessity of their job in the current organisation of work, which involves working across sites. Inter-branch working also has the potential to cause challenges to IPW/L due to differences in work practices. This is readdressed in the errors section of this chapter.

The case study results suggest that it is not only the division of labour and temporal nature of work that separates the professions within a veterinary practice, but also their intrinsic motivation to perform their daily tasks.

## Professional Motivation

As described above, the motivation for an individual or group of individuals such as a profession to undertake a task relates to the object of activity.

## Veterinary Nurse - Care

The veterinary nurses tended to consider animal welfare to be one of their main responsibilities; more so than the veterinary surgeons' and this was therefore something that they felt they had to champion.

## Animal Welfare

Patient welfare was a significant motivation, or object, in a nurse's activities, demonstrated by the following quotes:

[veterinary surgeons] are hands off like compared to us like we will give the medication we will see you know the animal's demeanour so we tell the vets ...I think the animal's kind of welfare is our job the vet comes in, does the op and then is gone (Jenny, I)

Umm [1], err, yes [1], I [2] do find umm occasionally I struggle with [VS] just because he's very much I do this and I do this I do this, and not a lot of leeway ... you know from like a nursing perspective you always try and put your patient first umm and sometimes I feel you have to sort of, [VS] needs more moulding I think (Kimberly, I).

The previous section has already highlighted the temporal nature of work, how it can affect the opportunities for interprofessional working, and how it can be a challenge to maintaining patient and client care through lack of continuity, as Jenny's quote reiterates. As Jenny's quote also shows, veterinary nurses are on the ground, dealing with the inpatients throughout the day. It is often the nurses that carry out the care plan, even if this is problematic. For example, Jenny goes on to describe at Cedar Vets one circumstance where there is some disagreement in treatment between the veterinary surgeons and the veterinary nurses based on welfare of cats, and the nurse:

I mean the only issue we've had is er, what I don't like is blood glucose every hour with a cat, it gets so annoyed

TK: OK

You get bitten and scratched, but you know, if it has to be done, some vets will have it two to three hours, some vets will have it every hour, so the cat that has it every hour is like so angry by the third one. Laughter. It's quite difficult

TK: Yeah

So that's the only real issue

TK: Is that something you have ever mentioned to a vet?

Yeah [VN] has but the vet was just 'no it has to be done' (Jenny, I)

Ultimately, the task is completed as it is seen as necessary for the cat's health, if not immediate wellbeing. While wishing to avoid the inaccurate stereotype that veterinary nurses just play with cute animals, as was expressed by Kimberly in her interview, it was evident that the nurses spent more time looking after the daily needs of inpatients, such as cleaning, feeding, grooming and socialising than veterinary surgeons.

### **Veterinary Nurse Responsibility for Clients**

Veterinary nurses also feel responsibility for clients, the owners of the animals. The head veterinary nurse at Cedar Vets expressed the opinion that if clients have a

complaint, they will not talk to a veterinary surgeon, but will come out of the consultation and complain to the veterinary nurse. They, therefore, are more on the ground for clients as well as patients:

I think sometimes the vets lose track of, you know, they do their client bit and everything and the client goes out ... the client will never complain to the vet... I'm more kind of like on the ground if you like and get, you know you see the clients more and the clients chat about stuff and if they are not happy then they will generally tend to say (Claire, I).

Claire is not afraid to bring the client's needs to the veterinary surgeon's attention:

sometimes I think it takes the nurses to actually say to the vets, look this is this, and she's rung and she needs a phone call and you need to do this and all of them I think are reasonably happy being managed umm for their cases and their phone calls and things like that (Claire, I).

This was further evidenced by observing Claire with regard to the financial aspects for clients:

[Claire] asks if the cost can be under estimate, it was approximately £800 and [George] agrees it can be £600 as it was so quick (Field notes, O).

The following took place at Field View Vets, and demonstrates the nurse organising the veterinary surgeon's contact with the client:

[The dog]'s awake, though very wobbly. She calms down with [VS] and he puts her back. He asks are [the owners] coming back in an hour, [VN] says need to call [them]. "While you're getting ready for the next one I'll go and write it up" [VS says]. He checks what it had, she says no you said ... and ..., "oh ok". (Field Notes, O)

The primary motivations for veterinary nurses in their activities, therefore, include animal welfare as well as client care. Although nurses can be advocates for these issues, it does not imply that veterinary surgeons do not also base their actions on both animal welfare and client care.

## Veterinary Surgeons - Cure

In some contrast to veterinary nurses, a veterinary surgeon's ethos has historically been one of curing the animal. This difference in views of treatment between the veterinary nurses and a particular senior veterinary surgeon was identified at Field View Vets:

I suppose the only thing I can think is sometimes umm you know obviously [VS] does a lot of orthopaedics, and things, and sometimes we as nurses think, probably more along the lines of we ought to start the weight clinics and things before we go into proper surgery straight away.... Umm so I suppose that's the only thing really, that I can think of, that's sort of a conflict, we do just think maybe we should try something a bit more conservative first (Amber, I).

The notion that veterinary surgeons focus more on cure than care is reinforced by the fact, already explored, that veterinary surgeons perform operations and consultations and must then leave veterinary nurses to the day-to-day care of the animals. During the operations, the animal is clearly unconscious, potentially distancing the veterinary surgeon from the fact that they are working with a living, breathing sentient being. The most identifiable difference in priorities between veterinary surgeons and nurses was seen with regard to pain relief. This is explored at the end of this section.

### Patient and Client Care

Veterinary surgeons are not purely governed by their role in curing, however. They also demonstrate care towards both their patients and their clients, especially during consultations. While I did not observe consultations themselves, examples of behaviour before and after in the reception area demonstrated their care. The following excerpts are from field notes at Cedar Vets:

[Sofia] comes out to greet the patient and the little dog is so excited she has a wee! [Sofia] shows the client and dog into the consult room and grabs some tissue, she pops it on the wee while [VN] goes out back to get the cleaning stuff and some more paper. ... The client leaves, she is barley a few metres from the door and [VS] realises she has forgotten to give the client something and runs out after her, [the client] comes back and waits a moment, this dog is happy to be back too, she collects her meds and goes (Field notes, O).

They [two veterinary surgeons and two veterinary nurses] are all so lovely, telling [the dog] what a good boy he is (Field notes, O).

The dedicated clientele for a particular veterinary surgeon is a possible indication of their care towards both client and patient. The fact that clients choose different vets may be indicative of their contrasting perceptions of a good veterinary surgeon. Field notes from Field View Vets suggest for example that:

[VN] calls the owner. Seem to need a little convincing to see anyone apart from [Paul] (Field notes, S)

Despite the obvious concern for patient wellbeing, veterinary surgeons within these first opinion practices tended to hold animal curing (disease diagnosis) and client care as their primary focus.

### **Veterinary Surgeons and Business**

Several veterinary surgeons are also partners or owners of the business, and therefore issues regarding finances may also be more imperative to them than to a new graduate with only basic business acumen or to the veterinary nurses. In the interview with Claire, she described how she had convinced the partners not to increase consultation fees unless value for money could be ensured. Paul described that although he is a director at Field View Vets, he is primarily a veterinary surgeon and finds aspects of management and business work challenging, though enjoyable. In his interview, he described how veterinary surgeons want to focus on clinical work; however not all are the same with regard to views on business work:

We are vets because we want to do clinical work effectively, but there are some who are happier than others to drop clinical work to concentrate on practice management (Paul, I).

Partners also have a motivation towards the wellbeing of their staff and several instances reflected this within the observations. For example, a Partner at Field View Vets consulted the staff on the Christmas party plans, another held a meeting with the HR manager regarding someone he was concerned about, and a partner at Cedar Vets talked about the fun working environment he promotes.

The motivation for veterinary surgeons has had to adapt over time. With increased treatment of pets, veterinary surgeons would have had to incorporate increased care. However, with the employment of veterinary nurses, the surgeons were able to concentrate on curing and diagnosis, as identified in the first two chapters of this thesis. Now, as the business aspects of practice increase in importance, veterinary surgeons must consider the finances and their employees more carefully. However, with the rise of administrators, assistant veterinary surgeons, at least, can again concentrate on disease. Paul's focus on clinical work therefore is why he is so obviously grateful to have administrators such as Rebecca.

## Administrators – Business and Staff

### Business Acumen

The administrators, including practice managers and HR managers, are hypothesised to hold business success and staff wellbeing, respectively, as their major motivations for work tasks. Christina, the practice manager at Cedar Vets, told me in her interview how Cedar Vets relates itself to Waitrose. They do not aim to be the cheapest; instead they aim to offer the best customer service. She said:

We are proud to be independent ... we rarely discount our prices because we don't, we believe that the service we deliver is worth that price. But then we will always make sure that we are delivering a good service... But also umm corporates they are very, they are finance driven ... We are clinical excellence drive (Christina, I).

Christina is able to elegantly explain the business side of the practice. While shadowing her, I observed her speaking to a client regarding a complaint:

[Christina] broaches the subject, why their dispensing and drugs are more expensive than online – she explains about all the costs they go through, the checking by clinical members, the gloves and staff counting out tablets, or making up solutions. Also the fear of fake drugs online. And the cost that the vets have to buy in the drugs for in the first place is more than clients can get it online. It is the service they receive that is the extra £5. The client to be honest seems pretty happy anyway and [Christina] says she just wanted to give her the opportunity to view any concerns and to explain the costs to her (Field notes, S).

Christina's primary motivation for her behaviour was exceeding the expectations of her clients. She respects the autonomy of her clients with regard to where they purchase their pet's drugs. However, she aims to educate them concerning costs within the veterinary practice and the ultimate safety of buying drugs from the practice. While being very financially aware, she perhaps allows the partners to take the lead on finances.

### Pastoral Care

Rebecca is the HR manager at Field View Vets. Every aspect of her expansive role related to the wellbeing of the staff, in line with the practice. Jim described her role as "pastoral, she looks after you" (Jim, I). I was able to observe this when I shadowed her, as she noticed a staff member was upset. Rebecca took the time to listen to her and understand her problem, and then worked with the directors to put motions in place to help.

## Receptionists - Clients

Small animal or pet receptionists spend the majority of their day working face-to-face or over the telephone with clients. Client care is therefore a major goal for a receptionist. However, Samantha identified that the benefits of this extend to the practice:

[A receptionist's] purpose is to retain and maintain clients and bring in new clients ... I think that's the ultimate goal, the client database which brings in the finances for everybody (Samantha, I).

## Managing the Veterinary Surgeon

Farm animal and equine receptionists, who spend a lot of their time organising the veterinary surgeons' visits, might consider one of the more important outcomes of their activities to be a prepared vet. For example Olivia, a receptionist at the mixed branch in Field View Vets, said:

we try and help the large animal vets where we can but, chase them up, tell them to take drugs and that sort of thing (Olivia, I).

## Owners and Animals

It is important not to forget that, although not professions or occupations and therefore not considered in depth in the current study, owners and patients have their own motivations that may be at dissonance with those of the veterinary professions. The owner's primary concern is that of the animal's health and wellbeing, while being potentially limited in their chosen course of action through cost and the range of treatment options offered to them. To the animal, it can be assumed, in cases where it is sick (rather than preventative medicine such as neutering), returning to full health would be the primary objective.

## Individual Effects

Different professions, therefore, appear to have different motivations which can lead to alternative perceptions on cases. This could potentially cause difficulties in working and learning together. As identified by the different motivations of receptionists working in different specialisms, however, not everyone within one professional group will have the same community, rules or division of labour in which they are acting, and their objects and outcomes may therefore differ. This



makes understanding motivations, and their impact on IPW/L, even more challenging.

It was also evident that individual personalities can make a difference, be that positive or negative. The interviews asked participants to identify role models for interprofessional working. Named individuals included veterinary nurses, veterinary surgeons and a branch manager. They were identified as having a variety of attributes including good communication skills, being caring, professional, organised, experienced and proactive. A few other individuals were however suggested to be destructive towards the team. Two examples were in positions of power and were said to allow their frustrations to come out and to adopt the philosophy of divide and rule. They were said to scare other members of the team. Both individuals had already left the practices prior to this study.

## Summary

The following figure aims to show the principal motivations - clearly not the only ones - that each profession attaches themselves to with regard to their daily work. Figure 25 is an aid to identifying differences and does not suggest that for example, a veterinary surgeon does not consider the welfare of animals – they certainly do.

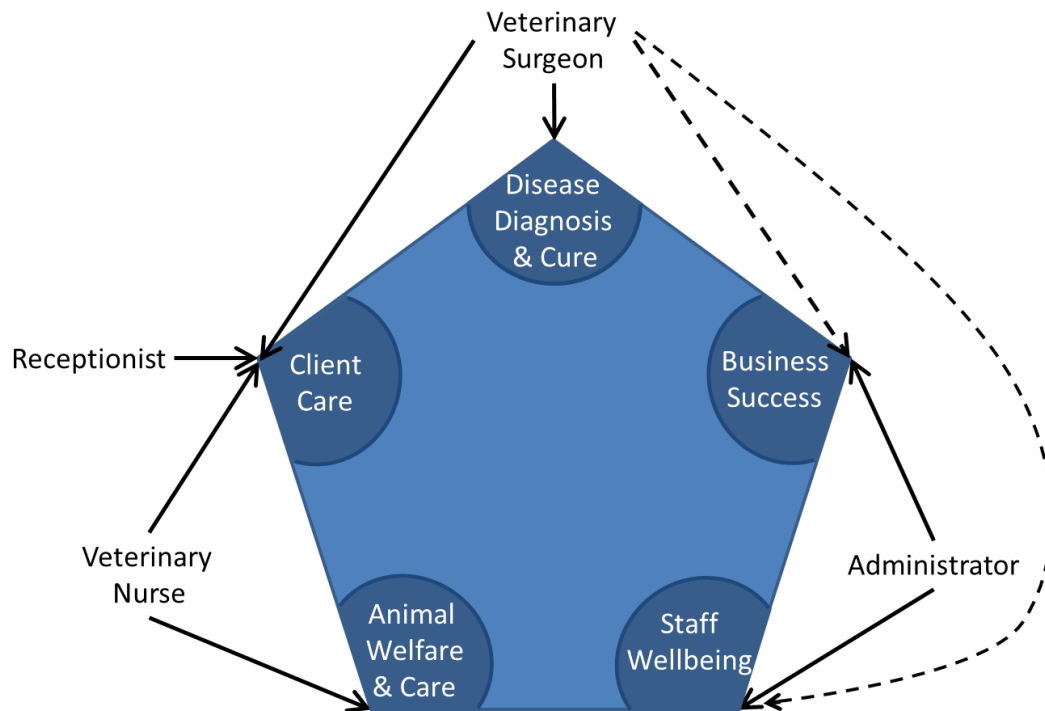


Figure 25. Demonstrating the principal, not the only, motivations for much of the work of each profession/occupation.

The dotted lines indicates objects for veterinary surgeons who are also partners

Challenges to IPW/L not only hypothetically lie in the differences in motivations which may lead to contrasting views on care, but also in the lack of understanding and appreciation of each other's differences. Where there is a lack of understanding of roles, there is likely to be a lack of understanding of motives. As the following section on professional dilemmas will expose, the role of the receptionist is not always clear. Therefore, it may be hard for clinical members of staff to appreciate their approach to their work.

Before moving onto the section on professional dilemmas, the issue of pain relief is explored further below. As indicated above, prescribing pain relief is an area of contention identified through both interviews and observations at both practices.

## Pain Relief

Analgesics or pain relieving medications such as vetergesic, are prescription only and in some cases controlled drugs, and can only be prescribed by a veterinary surgeon once they have clinically assessed an animal under their care (POM-V). As such, while veterinary nurses may ask the veterinary surgeon if they would like to prescribe the drug, they cannot administer it without the express permission of the veterinary surgeon. The first vignette, which introduced this chapter, is a prime example of veterinary nurses recommending pain relief for a patient but the veterinary surgeon not acquiescing to their request. The nurses prompted most of the veterinary surgeons for pain relief, and several were considered likely to respond in the affirmative, while others were known to be less complying. This was identified as being a gender issue by one experienced veterinary surgeon and veterinary nurse ('boys being mean with no pain relief' field notes, Field View Vets, O day 15) although the two males in question were also both partners.

## Examples

The following quotes are from interviews with veterinary nurses at both practices and highlight the differences in priority:

the vets just need to be reminded about pain relief sometimes ... the nurses are always a big thing on pain relief, can it have some vetergesic, can it have some, you know just as a 'oh yeah', but I think they kind of assume that we are going to do it, but we need to check, because if it's got an issue or whatever ...(Claire, I).

---

we are sort of trying to mould [the vets] a little bit, into bits and pieces, but that's fine!

TK: What do they need moulding in?!

... There's just a few areas that, like, I think [Paul] thinks that I've just got a, I waffle on about pain relief all the time, can this dog have more pain relief, whereas like [VS] will just be like oh yes that's fine you can have that, you have that; we have got there with [VS], we are moulding [Paul]

TK: You are on the way!

Yes! He does look at me as if to say hmmm, so I think sometimes he thinks I'm a bit of a broken record, can it still have pain relief, but umm so yeah it's quite funny (Kimberly, I).

Examples were also apparent through the observations:

[VN] and [George] check between each other about more pain relief (Field notes, O, Cedar Vets, Redwood).

“With the cats liver results can it have metacam” [Claire] asks [George], “umm” he takes a moment, “a single cat dose” he says (Field notes, O, Cedar Vets, Redwood).

“Metacam I assume?” [Amber] says, yes please [VS] replies (Field notes, O, Field View Vets, Meadow).

## Speaking Up

The personality test results indicated that veterinary nurses were the least extroverted group (average score 2.58 compared to 3.38 for veterinary surgeons and 3.83 for administrators). Although there were only four individuals from each group included in the personality tests, this result could tentatively suggest that there may be personality factors which make it challenging for nurses to speak up to veterinary surgeons, or any other group. Power differences between veterinary nurses and surgeons, in tune with professional hierarchy based teams, may still exist, and while some suggested they were happy to speak up to a veterinary surgeon if required (see for example Claire’s quotation from the previous chapter), others may not feel so comfortable. This may be largely dependent on the specific veterinary surgeon, with many being described as approachable and a minority as intimidating or stalwart in their practices.

The veterinary nurses often used tactics to tell a veterinary surgeon what to do or to make a request of them. Although Amber used the direct approach “Metacam [an analgesic] I assume” which almost gave the veterinary surgeon no choice in the provision of pain relief, she is an experienced head nurse. As my field notes noted, other nurses employed different tactics. The following example is of a veterinary nurse instructing a veterinary surgeon with a computer:

[The VS and VN] move their attention to the computer monitor. [VS] has control of the computer, but seems a little unsure of the software. [VN] asks her ‘did you want it on that?’ No she replies and asks where the modify button is. [VN] points to it and tells her to press ok and then finish....Back on the computer, [VN] says to [VS] ‘Do you want to select the lateral ...’. *I realise that instead of actually telling the vet what to do [the VN uses] the phrase ‘do you want to?’ [Observer comment]* (Field notes, O. Cedar Vets, Willow).

The next example relates again to pain relief although it considers the veterinary surgeon's own pet:

[Claire] asks if [George] wants post med for him (his own cat who had lump removal), he does, they joke about [George] forgetting post op care and letting the cat out straight away (Field notes, O. Cedar Vets, Redwood).

### Veterinary Nurse Dissonance

Where moulding, suggesting or assuming doesn't work, the veterinary nurse must proceed without the pain medication as per the first vignette. This again illustrates the issue of power, whereby the traditional decision making abilities differ between veterinary surgeons and nurses and may prove challenging to IPW/L. This indicates a contradiction within the nurse's activity system whereby the object does not align with the rules or division of labour in the practice which could lead to dissonance between desired care and actual outcomes. As explored in relation to wider literature in Chapter Nine, reasons hypothesised for the veterinary surgeon not prescribing pain relief (until prompted, or at all) include their distance from the animal compared to the nurse, cost (though this would be passed to the client) and different beliefs building from separate training. Not prescribing pain relief can be a valid response because, for example, pain relief can allow an animal to use a damaged leg, when it should be resting, or pain can be required to identify a problem area. It should be acknowledged that this is not a sweeping generalisation, and several veterinary surgeons were themselves advocates of pain relief and did not need any reminders. Further to this, as the examples show, in the majority of cases, as soon as the veterinary surgeon's attention was brought to the potential pain of their patient, they were also keen to prescribe appropriate medication.

Despite the range of motivations that each profession or individual may have, the overall outcomes of a healthy patient, satisfied clients, good working environment and successful business are ultimately shared by all members of the practice team. Interprofessional working for a common goal is therefore a likely situation. Not all actions within the practice are successful and errors are an outcome of any high stakes team based environment. Alongside errors, blame can be apportioned. In the following section some examples of errors and a consideration of blame are reported as professional dilemmas.

## Professional Errors

### Errors

The case studies focussed on observing factors which enhanced interprofessional working rather than on mistakes. On the rare occasion that an error was made, however, it was not ignored and was included in the field notes. Consideration of errors, and how they are recovered from, may provide useful sources of information regarding interprofessional working. Research and interest towards errors, especially in the medical field is quite significant. It has highlighted that, although individuals are involved in errors, there are frequently system issues which underlie the mistake. In the veterinary field, research is limited, and studies have focussed on self-reported data. However, the examples below are from objective observations, highlighting the contribution of this research as explored further in Chapter Nine.

A few errors were striking during the observations, primarily because they were commented upon by the team (for example lamenting the fact that I had observed a breakdown in communication). The acknowledgement of these errors led me to revisit the field notes and identify all the errors I saw.

Mellanby and Herrtage (2004) defined errors in their study as “an erroneous act or omission resulting in a less than optimal or potentially adverse outcome for a patient”. I adopted this definition, but extended it to include potential adverse outcomes for clients or the practice. This inclusive definition was designed to consider the breadth of mistakes made by the team (involving any profession), regarding any area of care, with any severity of outcome. In the majority of cases, the instances could be identified as clinical or communication errors.

### Clinical Error – Branch Differences

A limited number of instances involved clinical errors which could be subdivided into Dosing/Drugs, Surgical Preparation and Lack of Follow-Up. For example, in one case the different procedures used in each branch were a systemic factor, which meant that a veterinary nurse gave a pain relief drug as part of the pre-medication, as opposed to after the operation, which affected its effectiveness. The veterinary nurses were open and honest, and told the veterinary surgeon whose care the animal was under as soon as possible. They then considered the best course of action with regard to future use of drugs with this animal. The issue of branch

differences was mentioned repeatedly as a challenge to working and a potential source of errors, as was seen to be the case in this example. The branches have their own activity systems, with different communities and rules, and therefore each subject must adapt themselves to each system, unless the branches formulate a single way of working. The SNA sociograms highlight the lack of communication between several branches, which would aid their isolation in practices (the 'spatial dimension' as explained in Chapters Four and Seven). It is hypothesised that aligning systems across practice branches would assist with IPW and reduce errors.

### Communication Faults

The majority of the errors noted could, instead, be attributed to communication faults, such as those in vignette two of this chapter, regarding cleaning the ear before the swab was taken. In this case, the error was again admitted instantly and a friendly reprimand of 'numpty' was all that followed this apparently harmless mistake. Communication errors could be sub-divided into Records, Procedures, Missing Face-to-Face Communication, and Mistakes within Face-to-Face Communication. A selection of examples and their codes are conveyed via field notes below.

- **Records:** The first visit is five dentals and three vaccinations. There is a problem however, the owner says that one of the horses has a bad reaction to the vaccine ... He calls [R] and asks about the records, trying to work out what type of vaccine is ok and which one gives the reaction. They think that there is a type that would be ok, and it was used last time, but [VS1] doesn't have any in the car. He says to the owner that the computer didn't come up saying the other, less reactive, vaccine was needed, so in effect he blames it on the computer. When we later return to the car he says that [VS2], who has left, probably didn't put on the note which vaccine it had and therefore the girls on reception assumed it was the normal one, and therefore the system wouldn't have picked it up. He doesn't blame the receptionists (Field Notes, S).
- **Records:** There is confusion around some meds, [VS] has changed his mind and it's not on the notes, so [VN] says she will sort it and [R] can put the other stuff back
- **Procedures:** Some tubing parts have been washed which shouldn't have been, [VN] looks at her check list with notes on the wall for what the

nurses' procedure for cleaning are, she reads it, is that clear enough, she asks [SVN], then says I guess I should have written 'without these parts'.

- **Missing Face-to-Face Communication:** [VS1] comes into the office and talks to [R]. The 2pm [clients] wanted to see [VS2], who is on lunch, and are here for an ECG, which they don't have, it's at [Moor branch]. [VS1] asks who booked it in, [R] says her, she did ask [VN] what to do for ECGs and [VN] said book it in. Looks like it was taken to [Branch] and no one here knew. [R] must call [driver], he is going to go and get the ECG machine right away, [VS] calls [Branch] to let them know to get it ready for him. The owners have gone for a walk and will be back soon, when hopefully the machine and [VS2] will be here! (Field notes, O).
- **Mistakes within Face-to-Face Communication:** [VN] is out back and takes the opportunity to talk to [A]. She had sent an email to all at [Branch], saying about a client bringing in a letter, she also told [R1] and [R2] on reception, but the letter still got lost and has possibly gone to [someone else] (Field notes, S).

Although one example above explicitly stated that the veterinary surgeon did not blame the receptionists, two examples demonstrate either a veterinary nurse complaining to a practice manager about receptionists or a veterinary surgeon immediately asking "who booked it in" when an error was discovered. Despite other professions causing errors, there was, it appeared, a shadowy culture of blaming the receptionists. Identifying the cause of an error is challenging, due to the nature of system conditions. However, the interviews with focus individuals allowed the perceived cause of errors to be deliberated.

## Causes of Error

Receptionists were involved in several communication errors, which may not be surprising as they are heavily involved in communication between members of staff and clients. It should be noted, however, that the review of errors portrays veterinary surgeons being included in as many communication errors as receptionists.



## Working with Receptionists

When asked about challenges to interprofessional working, veterinary nurses and surgeons identified limited challenges in working together, but had some concerns regarding working with receptionists. Observations of conversations between the two clinical professions also highlighted receptionists as a cause of challenges in working together. The quotes in this section highlight veterinary surgeons' and nurses' perceptions of receptionists, including a lack of communication, initiative, knowledge and skills.

It's just things like booking appointments at really ridiculous times when [the nurses] are manic and [the receptionists will] book like a puppy consult that takes half an hour, we don't have half an hour. We haven't even had time to have a wee let alone anything to eat, and then we've got that on top of the place being like a bomb site and you know animals still waking up, animals still going home and there's only two of us so it gets quite difficult umm yeah it's mostly the receptionists booking things in or booking things in at the wrong time for stitches out because we have them come in for 10 days, where they won't read the notes and the client will say, oh the vet said he'd like it in a week or so, so they book it in a week and it's not ready to have the stitches out so then they have to go back, the owner is annoyed... I don't know if it's because umm if it's communication as such, but they don't have the knowledge that we do, which is I think that's the barrier there, not communication because the notes are communicated really clearly because there is everything on the client's files so it clearly says re-examination in 3 or 10 days or whatever, so umm yeah it's knowledge probably... I think communication between those guys [receptionists] because like once we [the nurses] have gone at 4pm and you tell them to pass the message on, but you know that doesn't always happen (VN, I).

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I think the front of house staff, the reception staff and this is a generalisation because it doesn't apply to all of them, [1], want, quite often want a standard process that they know that they can fall back on and they can rely under every single scenario, that would make life easy and simple for them and I think they struggle with, struggle with one vet liking to do something one way and then another vet coming in and going well I don't do it that way (VS, I).

Within one particular day, early in my study, there were several instances of discussions regarding receptionists.

[R1] comes back to ask about an estimate to [VS] who says it's all done, [VN1] chips in with what to do to get the estimate printed out. [R1] leaves and [VS] and [VN1] talk about receptionists not being able to think outside the box and have to go through tick list of things... [VS] and [VN1] talk about asking for things to get done but they are not done, by the receptionists... A known client calls asking for [VN2], [R2] comes in to tell [VN2], prefixing it with "I know you're very busy", [VN2] is cross because there is no reason

this client should have been sent specifically to her, but she tells [R2] to let her know she can call back later... They go back to discussing people nominating them for calls (Field notes, O).

### The Challenge of Reception

The clinical members of staff did sometimes appreciate the challenging nature of a receptionist's work. Thinking back to my brief time as a charity veterinary receptionist, I remember being very daunted by the fact that I was working in a clinical setting but had no clinical knowledge myself. The receptionists, especially new staff, rely hugely on the clinical members of staff to advise them how to deal with difficult situations. Claire related to one aspect of the receptionists' struggles in her interview:

it is difficult for them [receptionists], because a lot of them work part time, a lot of them work at other surgeries as well, and it is different in each surgery they work at, so when they come here and sometimes maybe at one of the other surgeries they are not allowed to do that, but we expect them to do that here (Claire, I).

Not only are branch differences a challenge to receptionists' work, but differences between veterinary surgeons in their approach to work are also an issue. It is important that a veterinary surgeon can act autonomously; however it is also suggested to be important that personal preferences do not lead to errors, as receptionists endeavour to adapt themselves to everyone's ways of working.

### Transparency of Professional Status

Receptionists have many skills, but their lack of clinical education should be accepted by all staff and transparent to clients. It is important that occupations and professions are clearly identifiable in situations such as healthcare, as identified in Chapter One. As such, one incident of a receptionist being taken for a veterinary nurse is briefly outlined below. The veterinary surgeon attempts to correct the client's mistake while not humbling the receptionist.

The owner comes in to see [VS] and says how she was just telling his nurse out there that she thinks [her cat] was hit by a car. *This is one of my worries about receptionists, in this case [R] asking lots of questions about the case to the owner in the reception, as it may give them this impression that they are clinically trained [Observer comment]...* [The owner] says again about booking an appointment with the nurses, [VS] corrects her in so much as says "I'll leave you with my colleagues on reception", *a good way to put it... The uniforms are great, but they are no good when you have nothing to compare them to [Observer comment]...*

[VS] says that [R] needs 'reining in' with regard to clinical knowledge, he says how she came in to tell him he's got a blocked bladder cat coming in, which it didn't turn out to be. He says she isn't saying 'I'm not sure, or I think' or checking enough with [VS], but he says she is very enthusiastic and keen so doesn't want to knock that (Field notes, S).

### Addressing Errors

It is important to consider ways to address the errors which are perceived to have been made. During the case studies it was evident that some people were already acknowledging difficulties in interprofessional working and were seeking to address these challenges through new interventions. The practice manager gave the veterinary nurse with the lost letter (see example on page 260) the following advice:

best thing to do is to email one or two people so they take responsibility, not the whole branch as then it's just a case of 'oh yeah delete' (Field notes, S).

In an interview with a nurse, I asked her how the level of knowledge of receptionists could be improved so that they no longer made booking errors. The nurse changed her mind from this being a purely knowledge issue to also being an issue of not reading notes, therefore communication.

Umm we do have kind of protocols where it's all the same so cat spays come back in 10 days, bitch spays or dog castrates 3 or 10 but if it's something weird like an eye ... or a cruciate or something like that, umm because I think if they don't check the notes, I think because there's such a high number of receptionists, they are all part time and so you know they change over all the time so you know you tell one person and it's a bit like Chinese Whispers. Laughter. Or they forget to tell the new person (VN, I)

It is difficult to suggest why people do not read notes carefully, and challenging to identify a solution to the problem. Time is likely to be an influence, and observations of receptionists trying to deal with multiple phone calls and a client, all at once, support the notion that receptionists may make a mistake due to lack of time. Of course employing another receptionist might help, but this would have financial implications for the practice. Reiterating to the receptionists that even if the client makes a suggestion for a follow up time, the notes should be checked, and making the prescribed follow-up visit time demonstrably clear are perhaps two simple ideas. Receptionists forgetting to pass on messages is indicative of them becoming bottlenecks for information transfer. A systematic way to transfer existing notes to the next receptionist may also help with the Chinese Whispers that occur at every change of staff. It is also true that the clinical staff cannot expect a receptionist to have knowledge of certain areas, especially if they are not identified within the

practice manual's inductions. The related case's induction list includes learning vaccination dates, but not check-up times. The VN in question also complains about receptionists booking in long consultations when the veterinary nurses have no time. Evidently some receptionists were alert to the requirements of booking in nursing consultations, due to previous experience:

[R] answers a call from someone wanting a nurses' appointment. She is about to book it in for tomorrow and then thinks to check with the nurse, she says to the client sometimes I say yes and then the nurses say oh no not then, so she goes and checks (Field notes, O).

However, it is not clear if all receptionists are truly aware of the process of these appointments. An excellent new development at Field View Vets is proposed for the farm animal receptionists. Rebecca explained it in her interview:

One thing that was picked up recently from a meeting was perhaps whether some of the receptionists go out on a farm visit

TK: Oh right

So they see the basics of what is done and how long things take

TK: Yeah of course

Because again really, they've got no concept as to how long things will take if they don't know the process (Rebecca, I).

Consultation between clinical staff and receptionists in order to understand what receptionists can be expected to do and know, across all branches, would be valuable. Receptionists are clearly not the only profession to make mistakes. They are also highly valued, for example, in their ability to deal with difficult clients and to organise veterinary surgeons appropriately (especially farm and equine). Examples of this can be found in the previous chapter.

As a small but important point, previous chapters identified that stressful situations such as emergency operations may lead to tensions between individuals.

Throughout my time at both practices the potentially stressful environment did not lead to angry outbursts or arguments.

Despite many errors being team and system based, the issue of individual blame for errors still exists due to the law. There were few examples of veterinary surgeons blaming a veterinary nurse, or vice versa during the case studies (when it did occur

it was largely in jest). One error demonstrated a member of each profession agreeing to share the blame:

[VN] checks with [VS] if bloods are done, ... [VS] asks about haematology results, no one told her haematology only GHP she says... they agree he told her while she was asleep or he said GHP but meant something else.

As complaints to the Disciplinary Committees increase for both veterinary surgeons and nurses, it will be imperative to consider the nature of the error, the culture of blame and the fairness of the reprimand. Although veterinary nurses are now accountable for their own actions, they remain under the direction of veterinary surgeons in many situations and therefore may not be solely responsible. Further purposeful research in this area would be of value.

## Summary

This chapter has used the concept of objects of activity to consider the view that different motivations for action can lead to a lack of understanding between professions, and challenges in working and learning together. The motivations are largely profession based, and may arise through separate training, differing fundamental beliefs, gender and philosophical approaches, as identified previously in Chapter Two. The chapter has also highlighted areas of error. Clinical error occurred rarely, but arose at least once due to different branch rules.

Communication errors were more common, subdivided into Records, Procedures, Missing Face-to-Face Communication, and Mistakes within Face-to-Face Communication, and included failure to read notes, forgetting verbal instructions, email misunderstanding and bottlenecks.

Chapters Seven and Eight have considered the findings of the embedded case studies, and aimed to depict the structure of IPW/L, factors which facilitate IPW/L and challenges to IPW/L. In the following chapter, I will evoke literature to consider the wider relevance and implications of these findings.

## Implications of the Research

In the final two chapters of this thesis I will address the implications of this research, its contribution to different fields, and areas for future work. The implications and

contribution are far reaching, pertaining to veterinary practices, veterinary education, policy and research design.

In the following chapter, therefore, the results of the research will be revisited in relation to published literature. Recommendations to improve IPW/L are presented.

## **Chapter Nine: Implications for Practice, Policy and Institutions of Veterinary Higher Education**

### **Introduction**

My thesis has followed the development of veterinary practice, from its origins of solo veterinary practitioners to the current model of an interprofessional team. This has been driven largely by the public, who want lower fees at the same time as a professional service. The thesis has paid particular attention to the development of the veterinary nurse occupation which became formally recognised as a profession by the RCVS during the latter stages of my research, through inclusion in a Royal Charter. Registered veterinary nurses are now required to undertake continued professional development and are accountable for their actions. In policy terms, this gives veterinary nurses a similar professional status to their veterinary surgeon colleagues, and it was hypothesised, this may begin to evoke a change in the traditional relationships within practice. As evidenced through the previous chapters, veterinary nurses' status is still not at a level of veterinary surgeons' and the relationships, while potentially changing, maintain an air of the traditional veterinary hierarchy. It is not only the professionalisation of nurses which has the potential to impact on the team, but also a rise in other occupations now vital to the successful running of a veterinary practice as a business. These groups include practice managers, HR managers and receptionists as first highlighted in my SNA.

In this penultimate chapter, the main themes from my research will be presented diagrammatically (Figure 26) to remind the reader of the overarching results. The data from the empirical research will then be revisited, triangulated and related to published literature. The field of healthcare provides the majority of this research. I believe the veterinary team deserves similar scrutiny; this thesis aims to start along this road and encourage others to follow. Throughout a portrayal of the results, implications for practice will be highlighted. While refraining from being prescriptive, it is hoped that this thesis will induce change in the working lives of the veterinary team through identification of potential practical in-house CPD-style initiatives and ideas for new protocols. Implications will also be considered regarding RCVS policies, the field of veterinary undergraduate education and methodological advancement (CHAT case studies). Further to this, the wider scale relevance will become clear as the comparisons with medicine are explored.

Richard Dawkins in 'The Blind Watchmaker' provides a lens through which to view complexity that could be applied to IPW/L. In contemplating the type of explanation that would satisfy someone in regard to a 'complex thing' (e.g. an engine), Dawkins suggested that interactions between parts of the thing and what the individual parts themselves do are important:

And if he started boring on about the whole being greater than the sum of its parts, I would interrupt him: 'Never mind about that, tell me how it *works*'. What I would want to hear is something about how the parts of an engine interact with each other to produce the behaviour of the whole engine... There is a hierarchy of subcomponents within components. We explain the behaviour of a component at any given level, in terms of interactions between subcomponents whose own internal organization, for the moment, is taken for granted...the aptest name for my approach to understanding how things work is probably 'hierarchical reductionism' (Dawkins, 1991, P12-13).

It is within this type of framework that this research has identified veterinary teams as being better than the sum of their parts, through the examination of the interactions between their parts (professions or branches), and the internal organisation and behaviour or motivations of each part (professions), and subsequently examined subcomponents (individuals such as key people). It is useful to remember this layered explanation of the living veterinary team throughout this chapter.



## Diagrammatic Summary of Results

Figure 26 demonstrates the main findings of my research. The figure indicates the enveloped nature of the team within the practice, within the history of the professions, and is based on the framework provided by Pfaff and colleagues (2014).

The concepts of hierarchy, spatial nature of work and temporal nature of work were first introduced in the SNA results (Chapter Four). They were revisited in the Case Study Chapters alongside the concepts of trust and value (Chapter Seven); different perspectives (Chapter Seven) and professional motivation (Chapter Eight); and professionalisation and accountability (Chapter Seven). In Chapter Eight the concepts of error and blame also surfaced.

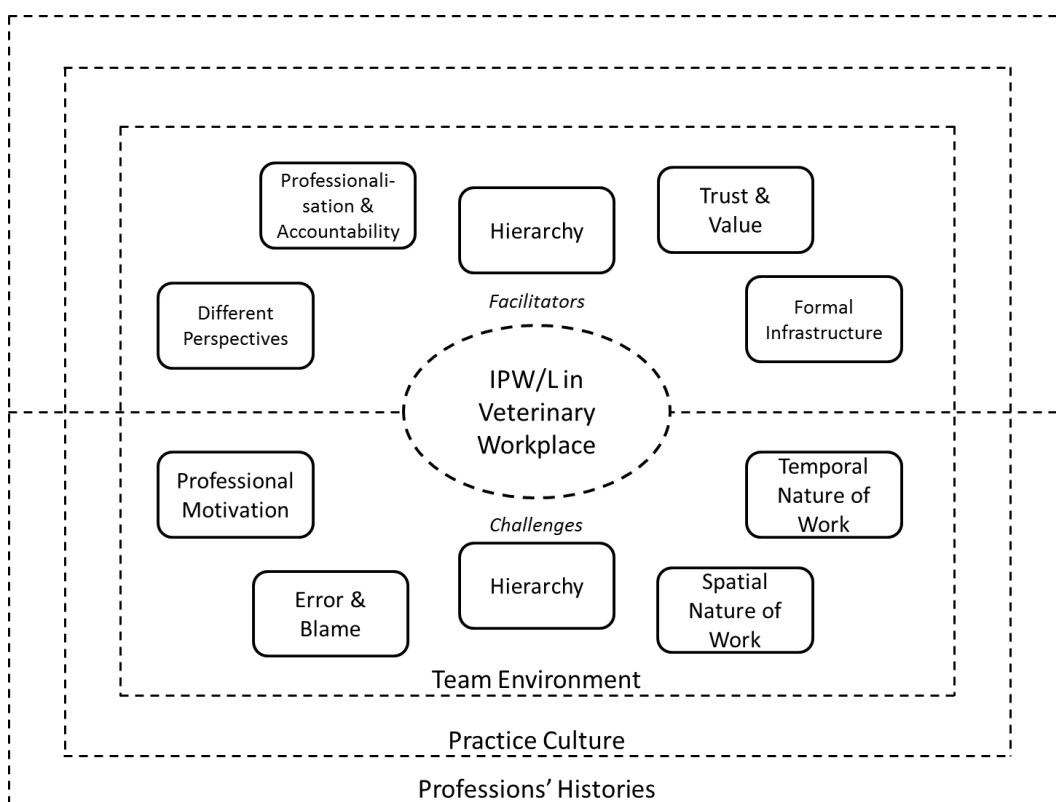


Figure 26. Summary of results, indicating facilitators and challenges to interprofessional working and learning

## Implications for Practice

### Interprofessional Working and Learning Structure

#### Growth of Organisations

This thesis has focussed on the change in veterinary work from a single veterinarian to a multidisciplinary team. Through the course of my investigation, my attention has been widened to include the appreciation of how the whole of veterinary practice organisation has changed. The issue of phases of growth of organisations has received attention in the business world since the late 1990s (Greiner, 1998) and the patterns chime with my observations. For this reason, I draw on Greiner to explain how organisations respond when problems arise that generate 'crises' or major challenges for people in leadership roles. Greiner (1998)'s description of the progression from phase one (creativity) to phase two (direction) through a crisis of leadership, whereby the original leaders do not want to (or do not have the skills to) take on leadership roles, and subsequently appoint others to fulfil these tasks, resonated with Paul's comments that:

hopefully we're improving our strategic management as well as our personnel management ... it has already had a, made a difference to how we we function as a group, umm it's become much more business minded I guess and much more umm strategic than it ever was, it was much more a sort of friendly bunch of guys sitting down you know on a Tuesday evening and chatting through things whereas it's much more umm business, but it has to be these days .... I guess [the appointment of Rebecca, HR Manager, and the Practice Manager has] taken away some of the umm umm management side [from vets] hasn't it and some of the paperworkey side more and hopefully made us much more of a professional body, I guess it's stuff that we have to do now, that we previously, we probably had to do but we just didn't bother umm if we're honest (Paul, I).

Following the concept of growth, between the direction phase and phase three (delegation) is a crisis of autonomy and the involvement of lower level managers, who may not be used to making decisions, while the higher status individuals may not like to give up their responsibility. This was also seen at Field View Vets. Paul's interview identified Rebecca's role as a relatively new position which had caused friction due to taking tasks from receptionists, which, as he described, gave the feeling that their power had been taken away by this reduction in responsibilities. Subsequently, with the introduction of the head receptionist as a lower level manager, Rebecca has seemed slightly unwilling to give up her responsibilities such as organising holidays, represented as concern that the Head Receptionist was not

ready for making such decisions. However, this may have been a mechanism to avoid delegation. Field View Vets are actively undergoing an expansion programme with external sources. As they continue with this, further examples of the later stages of organisational development will undoubtedly unfold. While it is not suggested that every stage of growth and crisis should be anticipated or a target, I recommend that an understanding of the process is important, especially for partners and managers. With the growth of the organisation comes a structure, either vertical (hierarchical) or horizontal, or complex, with elements of both.

### **Hierarchy – A Benefit and Challenge to IPW/L**

The notions of hierarchy, status and power are evident in the evolution of a business as described above, and have been core concepts throughout my thesis in relation to exploring IPW/L. One salient issue, which arises from the literature, is that a hierarchical structure is not necessarily better or worse than an organisation with a horizontal structure, but each can have their own benefits and challenges (West et al., 1999). This issue reflects my case study findings. A benefit of a hierarchy, from a managerial aspect, was shown to be the ability to ensure staff know whom to go with any problems. This relates to knowing who is the best person to help you ('knowing how to know who') considered by Edwards and colleagues (2009) in their study of multi-agency working for children's wellbeing. Literature suggests that hierarchies also provide stability, and the ability for information to flow downwards easily (West et al., 1999). This was frequently considered by the managerial staff, especially at Field View Vets, due to their desire to improve the cascade of information and foster their team's appreciation of their efforts at communication. The implications are that structural hierarchies can be beneficial in veterinary practices, and thus suggesting that hierarchies should be flattened in all scenarios is inappropriate. Instead, transparent hierarchies, in terms of line managers and information cascade, should be promoted.

Hierarchies can however cause challenges to working as a team and produce less than optimal outcomes. This is due to factors such as poor communication and homophily. I employ the concept of homophily because it is strongly associated with my SNA research. It describes a state in which individuals prefer to interact with those similar to themselves rather than ask for help or advice from those different from themselves. Homophily can be based on a multitude of factors such as gender, physical location and position in the hierarchy related to belonging to a certain profession. Professional homophily has been identified for example in

intensive/medium care units (Wagter et al., 2012), a renal ward (Creswick & Westbrook, 2010) and with academics (Patarraia, Margaryan, Falconer, Littlejohn, & Falconer, 2014). A study of low-acuity healthcare teams identified tensions around the interlinked themes of hierarchy, safety (to speak up/share thoughts) and leadership (whereby the doctor automatically takes the leadership position). This, the authors suggest, may lead to difficulty in creating shared mental models and mutual trust (Van Schaik et al., 2014). Through my SNA research, professional homophily was also demonstrated whereby for higher order interactions individuals tended to interact intraprofessionally rather than interprofessionally.

Recommendations for practice include promoting intraprofessional learning for sharing best practice within your own profession, but acknowledging that this should not come at the cost of failing to learn from new sources. There can be, therefore, benefits of having a diversity of sources, or professions, within a team.

### **Value Rationality as an Optimum Structure within Collaborative Communities**

The results of this thesis inform the suggestion that hierarchies of interactions should be based on experience and knowledge rather than purely on professional status per se. Adler and Hecksher (2006) have termed this 'value-rationality' within collaborative communities and examples of this have been demonstrated. From the literature, we know that an overarching profession-based (normative) structure but with an additional pragmatic experience based hierarchy, which together created a dynamic hierarchy, has been identified between newly qualified doctors and nurses (Burford et al., 2013). Similarly, a fluid and informal hierarchy, with a basis of knowledge and understanding, was demonstrated in primary healthcare teams (Quinlan & Robertson, 2010). During patient handovers in an acute care setting a professional hierarchy was not seen and instead communication was driven by the individual who could provide the information which was seen to be important for effective handovers (Benham-Hutchins & Effken, 2010). These findings are paralleled by my own. The SNA results in Chapter Four identified a proportion of interprofessional working and learning, and suggested a similar complex hierarchy within the veterinary field. The case study observations confirmed frequent interprofessional working between veterinary surgeon partners and certain key individuals with a wealth of knowledge and experience from both the nursing and administration teams. These 'key people' are considered in the following section with regard to trust and value. To increase the chances of interprofessional learning further, it may be useful to address attitudes to professions, including stereotypes,

as early as possible in undergraduate curricula, which may have the consequence of benefitting all veterinary practices. IPE is considered in the final section of this chapter. Any significant increase in IPW/L, which goes against the history of the professions' cultures, will take time, and it is evident that we are in the early stages of the potentially evolving relationships whereby the legacy of veterinary dominance persists.

### **Temporal and Spatial Factors and the Design of the Veterinary Team**

In the workplace, interactions are affected by the professions' opportunities to meet. In a review of social networks in healthcare organisations, both temporal and geographical proximity of individuals were identified as 'organizational arrangements'; an antecedent of professional social networks (Tasselli, 2014). Premises, in terms of close physical proximity, as well as stability, including full-time work, have also been suggested as aspects of team structure which foster interprofessional teamworking in primary and community care (Xyrichis & Lowton, 2008). In accordance with this research, proximity strongly affected interactions according to my SNA sociograms and case study observations. Branch rotation was seen as a means to transfer knowledge and skills across branches to create a unified practice. An outcome of this rotation is that individuals are frequently off site during the day, or do not feel that they have the stability from a base branch. Veterinary surgeons being off site was remarked upon as being a challenge to working and made hand-overs vital. This is all the more apparent when it is appreciated that the only time veterinary surgeons and nurses typically spend together is during surgery. As we have seen, nurses frequently employed informal strategies of opportunistically 'grabbing' veterinary surgeons when they are needed which has also been documented by nurses 'catching' doctors in hospitals (Reeves & Lewin, 2004). Practical repercussions of this include adopting a protocol of the veterinary surgeon 'checking out' with the nursing team as they leave a branch and 'checking in' with the nursing team as they arrive at a new branch. This would afford the nurses the chance to ask all the questions that they have been storing up throughout the day. Dedicated meetings, such as clinical effectiveness meetings, were seen in Chapter Seven as beneficial and should be promoted. Reflection on processes, as occurs in these meetings, has been recognised as a major factor in collaboration. It empowers individuals by enabling effort to be linked to outcomes, and promotes accountability for tasks (Mellin et al., 2010). Clearly, time is of the essence and it is not adequate just to suggest that veterinary surgeons and nurses

find more time in their busy days to sit down and talk. As Chapter Five identified, more communication is not the whole answer. Quality is just as important. Therefore, all communication is vital and any opportunities for reflective meetings should be grasped. This aligns with a 'Reflective Adaptive Process' used within complex adaptive systems, such as primary care, where creating time and space for team meetings is promoted to allow reflection on past learning and to analyse current processes in order to adapt and change (Stroebe et al., 2005). In addition, Reflective Adaptive Processes encourage differing opinions through the inclusion of a variety of stakeholders in improvement teams (as well as active leaders); which is in contrast to 'Continuous Quality Improvement' strategies which aim to minimise diversity (Stroebe et al., 2005). Literature regarding nursing reflection in a hospital ward (Mantzoukas & Jasper, 2004) suggests that the organisational culture of the team includes power differences, where doctors and managers discourage nurses from using reflection as it is viewed as abnormal and invalid. This was done 'covertly' and quite likely, without purpose, although the article repeatedly states how this behaviour enforces the higher profession's status. Ideally, organisations should value new knowledge, arising from the reflection of a member of any profession. They should consider the knowledge and use it, where appropriate, to make a change to practice involving any of the professions; otherwise reflection has limited value.

For much of a typical day in a veterinary practice, however, the limited communication between the clinical professions is adequate for effective working. It can be suggested that the presence of shared mental models and understanding of the team and tasks (Salas et al., 2007) enables implicit communication to be sufficient for expected tasks and for explicit communication to be required only when questions arise regarding novel or problematic instances.

In identifying potential participating practices, it was easier to find practices with multiple branches, which appears therefore to be the modern optimal business model. As identified above, in practices with staff rotation, interactions persist across branches. However, when there is little rotation, cliques tend to form. Both case study sites have examples of branch cliques (Willow and Ash in Cedar Vets and Forest in Field View Vets) which were identifiable to me as an observer and to the team, as described in Chapter Six. Each separate branch may function successfully, but they do not outwardly appear to be a single practice. They are unlikely therefore to benefit from the experience of the whole and may experience

challenges when an element of staff rotation is required. An advantage of corporate practices has been hypothesised as the ability to share best practice; however, given these results, it may be more challenging than expected to put this into action. Branch differences were obvious in the SNA results in Chapter Four, and were mentioned in interviews and observed in practice to be a source of confusion and error, as highlighted by a drug related mistake outlined in Chapter Eight. The consequence is that branch uniformity should be the aim; however it requires significant communication and buy-in from all team members. Traditional leaders such as veterinary partners are especially important, though may hold initial reservations to adapting their practice, analogous to doctors with handwashing (Gawande, 2007a) and with checklists (Gawande, 2007b). Team consultation was also highlighted by Cedar Vets to ensure agreement rather than just acceptance of new initiatives.

Another area, integral to the issue of practice growth which I'd like to draw on, is the size of the organisation (Greiner, 1998). During expansion, veterinary practices may acquire another branch site or instead they may choose to enlarge their current site. As discussed, multiple branches have challenges; however so does one large team. Optimal team size is an interesting concept, and the literature fails to provide us with a 'right answer' for all contexts. It has been considered for hospital sub-teams, such as oncology where it is suggested that teams should be just big enough to be able to complete their tasks as large groups lack coordination, communication and motivation; the optimal size of 12-15 was reported (Barrasa et al., 2007). Specific research into interprofessional team working has suggested that 'smaller sized teams' function better and are therefore more effective (Xyrichis & Lowton, 2008), although they did not define 'smaller'. My SNA results also indicated a lower density of interactions for large practices as people could not interact with everyone and therefore chose who to interact with. A problem develops if the choice of interaction is based on reasons not linked to knowledge or experience, such as friendship. Being social with someone was significantly linked to their work interactions in my social SNA results. Therefore, if a practice decides to grow, they must consider methods to maintain and improve interactions between team members. Methods of allowing staff across sites to feel that they know each other are important. For large groups, a database can prove beneficial (Cross & Parker, 2004), which can include individual's expertise, such as small animal surgery or computers, as well as some personal details, in order to make colleagues, who have never met, seem more human.

## Social Interactions Aid Working Relations

Face-to-face interactions are likely to have more permanence and I would therefore suggest that practice support of social initiatives is a worthwhile endeavour. The friendly, family, fun nature of the teams, which included all professions, but was linked to the individual branches, was clearly discernible in my observations. It is in some contrast to, for example, the business-like, stripped of social elements, interactions described between doctors and nurses in some acute hospital wards which were attributed to the brevity of interactions as well as unequal power relationship and efficiency of work (Reeves & Lewin, 2004). It, however, resonates with ideas related to group identity, where friendships across boundaries (for example a veterinary surgeon and a veterinary nurse) may allow the friends to attribute positive associations to each other which are usually only held for members of the same group (Bartunek, 2011).

## Value and Trust

An increase in value of veterinary nurses can be inferred from the successful award of the Royal Charter which has been extended to include nurses as a profession. The support was lacking in 2011 when only 7% of veterinary surgeons and nurses signed an e-petition to regulate veterinary nurses under statute (Garlick & Orpet, 2014). However after much effort, from veterinary surgeons and nurses, the Charter was granted, and a private members bill has recently been submitted to the ballot in the House of Lords in order to provide legal protection to the title of veterinary nurse.

Value, along with the interlinked theme of trust, were two of the more dominant themes which arose from my case studies. Trust within small learning communities consisting of veterinarians in The Netherlands has been suggested to lead to the ability to ask for and provide feedback, and being open about mistakes (de Groot, Endedijk, Jaarsma, van Beukelen, & Simons, 2013). Trust is therefore linked to teams that will progress in their use of evidence based practices, improving efficiency. My SNA therefore supports the theme of trust by identifying a prevalence of advice seeking (Chapter Four) while the case studies showed that errors were discussed (Chapter Eight). Further, the positive client feedback demonstrated in Chapter Six can be tentatively linked to efficiency.



## Practice Support of Veterinary Nurses to the Public

In two of my four interviews with nurses, the public's view of their profession was raised. It can therefore have an impact on some nurses' work. A Survey of the Profession showed that 16% of nurses were intending to leave the profession. The primary reason given was pay, but the secondary reason was not feeling rewarded or valued in non-financial terms by clients (Robinson, Williams, & Buzzeo, 2014). Practices must do their utmost to support their qualified veterinary nurses and reveal their hard work to the public. There was evidence of this within my case studies. The inclusion of veterinary nurses on the 'meet the team' pages of websites, posters of the nurses in waiting rooms and leaflets identifying the clinics that nurses offer are ways to increase the public's awareness of this vital profession. The RCVS have produced a booklet (RCVS, 2015f) for practices to help explain the veterinary nurse's role to clients, and also what a student veterinary nurse can do, demonstrating the policy maker's interest in this issue. Incidentally the booklet says:

Most practices will also employ a range of non-clinical staff, including professional practice managers, receptionists, veterinary nursing assistants and kennel staff, among others. If you are unclear as to who is talking to you about your pet, always ask!

Veterinary Nurses typically earn approximately £18,000-22,000, with a head nurse, night-time nurse and specialist being able to expect slightly more. An increase in salary would most likely improve retention, and possibly motivation, and would mirror the increase in status and responsibility that the profession has recently gained.

## Veterinary Surgeons' Value of Veterinary Nurses in the Literature

The value of the nursing professional has been very briefly addressed by the RCVS's latest Surveys of the Professions. The report stated that veterinary surgeons "largely agree [75%] that ... veterinary nurses are valued within the [veterinary] profession" (Buzzeo, Robinson, & Williams, 2014, P86). The response has slightly improved since the last survey in 2010. In the veterinary nurse survey, the score was slightly less for the comparable statement 'veterinary nurses are valued by veterinary surgeons' (Williams & Robinson, 2014), indicating nurses do not feel as valued as veterinary surgeons believe they are displaying. Further, 33% of nurses reported a challenge to their profession was a 'lack of respect/recognition for profession from employers/vets', which has increased substantially from just 11% in 2010 (Williams & Robinson, 2014). In relation to this research, my two case

study practices are not unique in their culture of trust and value towards veterinary nurses; however they appear to demonstrate levels higher than many practices in the UK. It must be remembered, therefore, that not all practices and not all veterinary surgeon-nurse interactions are the same. My results add greatly to this simple single question in a survey of the professions, and may provide ideas for potential solutions for dysfunctional veterinary practice teams.

### **Veterinary Nurse Dissonance – Who I am vs What I do**

Feelings of lack of respect may be as a result of the veterinary nurse's increasing intrinsic status but lack of a corresponding increase in extrinsic recognition. These results are also seen in medicine, where it is hypothesised that the increase in status of the nursing profession through their university education, which grants them a professional identity, is at odds with the workplace where historical professional identities remain (Langendyk, Hegazi, Cowin, Johnson, & Wilson, 2015). This can lead to disillusionment; a possible cause of leaving the profession. Creating a more flexible and fluid professional identity, through IPE, is suggested as a way to focus on client centred care and to prevent burnout and attrition (Langendyk et al., 2015), and is explored in the later sections of this chapter. In a recent narrative study of career identity in the veterinary profession (or professions in my terminology), some veterinary nurses were also seen to experience tension between "who I am" (a technically competent nurse) and "what I do" (lower down the hierarchy, not valued, skills wasted, receptionist/cleaner) (Page-Jones & Abbey, 2015). However the study also reflected results from my interviews, which suggest there have been improvements in professional standing over recent years. Dissonance between colleagues' opinions, public opinion, salary and the increase in status and skills may therefore be challenging for veterinary nurses and is an area new to research. This thesis provides a comprehensive reflection on trust and value and has identified practical areas where endorsing this to the public can be valuable to the team ethos and potentially, therefore, the practice.

### **Veterinary Surgeons as 'Doctors'**

Continuing to deliberate upon status, it is interesting to note recent advances in the veterinary profession as well as the nursing profession. Veterinary medicine has always been surrounded by status comparisons with human medicine, as outlined in Chapters One and Two. This, alongside the desire for international parity between veterinarians, has led to the consultation and award of the courtesy title 'Dr' for

members of the RCVS (RCVS, 2015e). I looked into the timing of this and noticed that the first consultation for this proposal had a deadline of 16<sup>th</sup> February; just one day before the new Royal Charter came into effect, granting veterinary nurses professional status. Veterinary nurses did not engage with the consultation process, with less than 7% of respondents being qualified or student veterinary nurses. Perhaps one outcome of this courtesy title is another status move above their veterinary nurse colleagues, maintaining traditional structures. Maintaining power, in the face of threats to status, has been suggested to occur through institutional work including theorizing, defining, educating, policing, constructing normative networks, embedding and routinizing (Currie et al., 2012). Perhaps evoking policy is another method.

### **The Importance of Key People in Teams**

While the majority of my thesis relates to the team as a whole, I also indicated in Chapter Five that individuals can, in turn, have an impact on the team. This is an area quite new to SNA research as explained by Tasselli (2015) who identified for example clinical directors and nurse managers as central to knowledge transfer. My SNA results, regarding key people, plus the case study observations of head nurses and managers, have revealed the importance of certain people within a veterinary practice team. One significant point in the literature regarding implementing change is that professionals may be more inclined to listen to novel ideas and suggestions of ways to work if they value and respect their colleagues (Mellin et al., 2010). This is certainly the case with the identified key individuals in my research. Utilising the discourse of SNA, the key people have several shared traits. They have been shown to be central connectors, as they are connected to many people (Cross & Prusak, 2002). While some key people are the owners of the practice, other individuals include both designated mid-management leaders such as HR/Practice managers (Rebecca/Christina), and Head veterinary nurses (Amber/Claire), and emergent leaders which included members of all professions. These results suggest that there is an element of distributed leadership within veterinary practices. This is an area identified in social network research as requiring further research to enhance our understanding (Balkundi & Kilduff, 2006). SNA statistics also show that Rebecca, Christina, Amber and Claire have a high betweenness centrality, meaning they link different people. The case study interviews identified that they were frequently the link between the partners in their practice to the rest of the team. They are therefore information brokers (Balkundi & Kilduff, 2006), and subsequently

have the potential to act as bottlenecks, restricting communication flow, possibly through being overworked (or on purpose). Being a 'broker' of knowledge is reinforced by the notion that the key people were also frequently boundary spanners (Cross & Prusak, 2002), as they cross between their profession and other professions. Boundary spanners need to have the skills to be accepted across groups. The identification of people acting as leaders is important in order for them to be able to recognise each other and synchronise their work to produce the most effective outcomes (Mehra, Smith, Dixon, & Robertson, 2006). These individuals can also be targeted as ideal starting points for disseminating knowledge or new initiatives (Anderson, 2002; West et al., 1999), including for example initiatives related to IPW/L.

With respect to leadership, this thesis concludes that it is important that leaders, whether they are owners, appointed leaders or emergent leaders, are supported in their roles and valued for the assistance that they provide. We know from the literature that popularity and having many interactions implies a cost of time and effort (Tasselli, 2014). For those like the HR/Practice Managers and Head Nurses, who frequently interact with everyone, this is a great cost. It is hypothesised that a lack of recognition of key people's work, which is often above and beyond their attributed role, may lead to dissatisfaction and ultimately resignation. Many of these individuals were thought to be almost irreplaceable in my case studies, and therefore the removal of them from the team would be a significant loss to the practice. This research has shown that SNA is an impartial method of identifying these individuals and could be used to judge people who would be worthy of reward, or at least, support.

## **Professional Motives: An Interprofessional Benefit and Challenge**

### **Encouraging Different Perspectives**

Members of different professions can have alternative ways of looking at an issue. As I anticipated in Chapter Five, having an interprofessional team with multiple perspectives can potentially create a pooling of ideas and novel solutions that any one individual or profession could not aspire to. This is one of the prime benefits of teamwork and should be encouraged. As long as there is trust and respect between the collaborators, these novel ideas can then transfer into daily work. This was seen

within my case studies, where for example, the partners frequently asked administrators for their non-veterinary opinion on business matters; veterinary nurses kept the offsite veterinary surgeons updated with inpatients' wellbeing so that courses of action could be decided upon; and receptionists came up with novel initiatives for client relations.

### Motivations for Work

The different perspectives are related to an individual's motivations for carrying out their work. A veterinary surgeon, especially the owner of the practice, has many competing demands on his decisions which may culminate in ethical dilemmas. It is important to bring in here the challenging nature which is specific to veterinary work.

A major difference between veterinary ethics and medical ethics is the expansion of the clinician-patient relationship to a triangular clinician-patient-client relationship. This is at the heart of the majority of veterinary ethical dilemmas... the way these dilemmas are resolved will depend on an additional element, the concept of the profession held by the individual clinician... Veterinary ethics deals with the complex judgements that lead to the professionalism with which veterinarians discharge the responsibilities to their patients, their clients, the public, the profession and themselves (May, 2012, p54).

Although any veterinary surgeon must consider all these elements in any decision, this thesis suggested in Chapter Eight that the historical focus on the disease process, in terms of curing the animal, remains as the primary motivation for their work. The majority of veterinary surgeons wanted to perform clinical work, consulting and operating, as opposed to, for example, being the individual in charge of arranging contracts for new staff members or attending multiple meetings. As we have seen, in contrast, a veterinary nurse's main motivation was animal welfare, although they too must consider the holistic care of the patient which includes the owners and the treatment of the disease. An administrator's main motivation was identified as the business/team and clients, and the receptionists' was also for clients.

### Collective Competence

When the professions are brought together to discuss an issue, they expand their object of activity and can incorporate the motivations of other groups into the final decision, which has benefits for all the elements identified in the quotation above. Competent teams have been shown to have more similar shared mental models

within the construct of team situational awareness (Flin & Maran, 2004). This is an example of distributed cognition (Hutchins, 1995), as explored in previous chapters, and collective competence (Lingard, 2009). Collective competence is an emerging discourse which realises that a group of competent individuals does not necessarily equate to a competent team. It is hoped that this thesis will be influential in its reinforcement of the expansion of the traditional focus in healthcare and veterinary science on an individual to that of the team. This involves reference to knowledge and skills, how individuals are educated and assessed, and how individuals are blamed for errors in practice (as explored below) (Gawande, 2007a; Lingard, 2009).

Fostering each profession's unique skills, knowledge and attributes is still important, we do not want to fall into the blind spot of collective competence and deflect our attention wholly away from individual accountability (Lingard, 2009). However it is also important that, for example, veterinary surgeons have an awareness of the skills of veterinary nurses, administrators and receptionists so that they can understand and appreciate their work. Further, not all practices are lucky enough to be able to employ all groups, such as well-trained administrators. It is therefore still appropriate to teach different groups administration topics, such as business skills, and clinical topics, shared between veterinary nurses and surgeons, such as animal handling.

### **The Challenge of Contrasting Motivations – Pain Relief Exemplar**

Expanding another's object of activity, or motivation, within a space of reasons (Chapter Five) may not be a simple process. It was identified in the case study interviews and observations that veterinary nurses are the main protagonists of pain relief and were required to momentarily change the veterinary surgeon's motivation from curing to welfare in consideration of pain relief. This inaction by veterinary surgeons is most likely to be due to the various elements that are already competing for their attention, rather than a conscious refusal to prescribe pain relief. However this was not always the case and in one memorable case the veterinary surgeon repeatedly declined the veterinary nurses' suggestions of pain relief. Again, whether rightly or wrongly, it is not for me to judge. Literature supports a true difference in opinion regarding pain. A paper investigating the attitudes of UK veterinary nurses to the assessment of pain identified that nurses displayed higher ratings of pain than veterinary surgeons from a previous study (Coleman & Slingsby, 2007). Reasons for this were hypothesised as different belief systems of the two groups, potentially due to the different attitudes transmitted during education, and/or due to the nurses

spending more time directly caring for the patients. An earlier Canadian study had also provisionally attributed the higher pain scores of animal health technologists (comparable to the UK's veterinary nurse) to the different fundamental beliefs of the two groups – both before becoming a student and due to the approaches in the educational programmes (Dohoo & Dohoo, 1998). Interestingly, they noted that veterinary surgeons who worked with an animal health technologist scored pain more highly and had less concern over typical risks than those who did not. This was suggested to be because a technologist can monitor the animal and therefore reduce side effects, and also because the technologist can influence the veterinary surgeon's beliefs by working as part of a team (Dohoo & Dohoo, 1998). Pain studies also demonstrate that women rank pain higher than men (Coleman & Slingsby, 2007). This is in line with care versus justice orientations (e.g. Gilligan & Attanucci, 1988), where female veterinary students were more orientated towards animal care than males (Quinn, Kinnison, & May, 2012). An account of the historical differences in gender (and age) of veterinary surgeons and veterinary nurses was revealed in Chapter Two, suggesting that nurses are more likely to be younger, and have always been primarily women while there are still a number of older male veterinary surgeons in practice. This difference in opinion regarding pain, a fundamental aspect of treatment, highlights how interprofessional working can be challenging. A greater understanding of the reasons behind the decision making process across professions may stop growing feelings of dissonance. Our initial research into veterinary interprofessional education highlighted that student veterinary nurses were already aware of, and concerned about, differing approaches to patient care between veterinary surgeons and nurses, and wanted to understand the thought process of the veterinary surgeon better (Kinnison et al., 2011). My thesis has demonstrated that the professional difference is real and exists in practice. Increasing mutual understanding and agreement, in order to avoid dissonance and dissatisfaction, is likely to require more interprofessional communication for the higher order interactions such as problem solving than is currently seen according to the SNA results of Chapter Four. Communication skills are revisited in the implications for education section below.

## Summary

This section's title is 'professional motives: an interprofessional benefit and challenge', and I have perhaps given more space to the challenging nature of contrasting motives. While this is important, I would like to conclude this section by



reiterating how it started; differing professional perspectives and knowledge allow each profession to be the best that they can be in their specialism, and through interprofessional teamwork, benefits the practice, team, client and patient.

Before I move on from discussing motivation, I will briefly mention the vast area of medical professionalism. Reading Castellani and Hafferty (2006)'s portrayal of the seven competing clusters of medical professionalism, I was inspired by the thought that propensity towards or against IPW/L could be based partly on an individual's ways of organising work, summarised as their professionalism. I hypothesise that the Entrepreneurial and Empirical clusters, with highly rated autonomy and professional dominance and lower rated interpersonal competence, will be less favourable towards IPW/L than the Academic and Activist clusters, who place interpersonal competence above autonomy and professional dominance. However this is an area in need of further research, especially with regard to the veterinary field where studies of professionalism are rare but increasing (e.g. Roder, Whittlestone, & May, 2012).

## Errors

### Outcomes of Error

Literature suggests that errors frequently relate to deficiencies in communication, the results of which, within operating rooms, have been shown to include procedural error, inefficiency, tension, and inconvenience to patients (Lingard et al., 2004). I noted several examples of errors within my observational field notes. They also primarily related to communication errors, but included a few clinical errors, as well as incidents of losing an item. The errors identified in my study caused inconvenience to clients in the vast majority of cases. Examples included having to wait for test results, and having to book another appointment as something was not completed in the first instance. It is possible that there were patient implications for these examples; however the quick actions of the team, once an error was identified, perhaps enabled these outcomes to be limited to inconvenience rather than actual patient harm.

### Systems Approach to Errors

There has been a historical emphasis, within all fields of human endeavour, on mistakes being made by an individual. This culture has led to mistakes being a source of anxiety for veterinary students (Mellanby & Herrtage, 2004; Tomlin,



Broadbelt, & May, 2010b). Studies suggest however that medical errors can be caused through system errors, not only one person's negligence or incompetence (Kalra, 2004). System errors can arise when a latent condition, such as high workload, is added to an active failure, requiring direct contact with a patient, and a local trigger, such as an immediate time pressure (Reason, 2000). In the majority of cases within my observations, more than one individual was involved in the error scenario. My results, therefore, concur with the literature in the suggestion that a systems approach is undertaken by organisations, including veterinary practices, which considers their culture and any potential latent conditions when an error is detected to help prevent future errors. Errors should be detected and reflected upon in order for the professions to learn from their mistakes (Paterick, Paterick, Waterhouse, & Paterick, 2009). The culture should therefore be of no-blame, or perhaps more appropriately a 'just culture' (Wachter & Pronovost, 2009), which targets individuals repeatedly making mistakes after guidance and advice, but does not place blame on individuals who were simply at the end of the line when the adverse event occurred.

## Blame

Interlinked to the issue of errors is the concept of blame; however this extension is sometimes missed in research. In my observations, receptionists were quite frequently involved in an error event, and identified as sometimes being challenging to work with. They were, however, also highly valued for their ability to work with difficult clients and to provide a positive "front-of-house". Green (2015), who has written on the changing face of veterinary practices, describes some customer service "secrets" of great receptionists including having the right attitude, making eye contact, and making the client feel good, all of which were discussed extensively at Cedar Vets. He suggests a change of name from receptionists to "Head of First Impressions". Many might consider this a step too far, but it is important that receptionists are valued, trusted, supported, trained and considered as much a member of the team as the clinical staff. The challenges that they face, in terms of clients' constant demands for their attention (via the telephone or face-to-face), should be incorporated into our expectations of them.

## Reducing Errors

Practical solutions to reduce errors include unifying actions between the branches of practices, as well as between individual veterinary surgeons who should not expect

receptionists to cater for every individual veterinarian's different quirks (although many currently do, Chapter Eight). Creating realistic expectations for each profession, through extensive discussion and subsequently providing appropriate training so these expectations can be met, is also important. Protocols, checklists and systematic methods are also suggested to reduce error (Gawande, 2007a). For example, better protocols for transferring information between part-time receptionists would be useful in both branches. Communications logs may assist part-time receptionists to reduce gaps in information (Stroebe et al., 2005). It may be hypothesised that some resistance could be shown by veterinary surgeons towards the adoption of too many protocols which are seen to impede autonomy (Barrow, McKimm, Gasquoin, & Rowe, 2015). Individualism and adaptation are important traits for veterinary surgeons in creating solutions to unique problems (Proctor, Lowe, Phillipson, & Donaldson, 2011). However, a balance needs to be achieved between individualism and conformity to protocols when you work within a team.

Another suggestion is that staff members experience 'a day in the life of another profession'. Ideally, every veterinary nurse, for example, would spend a day shadowing a veterinary surgeon, an administration manager and a receptionist; and similarly for all other professions. The shadowing performed during the case studies revealed the roles that the professions undertook, and just how hardworking, dedicated and caring those 12 individuals were. One Director, once asked me how my day had gone, "had the receptionist I'd been shadowing got it easy"? My response, revealed in my notes, was "I can safely say no, she's been busy all day" (Fieldnotes, S). It is probably unlikely that this type of intervention could be undertaken as a part of normal business practice, as it would require so much time out of normal work. However, it may be possible for one member of each profession to shadow another, and create a presentation of their experiences. Of course, this will only be a positive experience for all if they are able to experience the high quality working revealed in my study.

Shadowing is identifiable in the literature, although these examples are small scale and show mixed results. Preliminary evaluation of a training programme for qualified nurses, GPs and social workers suggested that shadowing each other for a typical day provided novel insights into other professions, although this was not universal (Matthews, 1997). Students who shadowed a rehabilitation team for one day were struck by the mutual trust and shared responsibility of the team and were motivated

for future interprofessional working, however, were concerned by the evident blurring of roles and challenges to professional identity (Fougner & Horntvedt, 2011). At a recent conference, AMEE 2015 (An International Association for Medical Education), two posters depicted similar methods for students. The first involved medical students shadowing nursing students (Close, Jamieson, Tocher, & Skinner, 2015). Results indicated the experience allowed medical students to better understand nurses' roles and enabled them to feel part of the team. It could be hypothesised that the nursing students may also have gained in confidence through teaching the medical students. When questioned, the presenter said that nursing students were not able to shadow medical students due to the stressful nature of the full medical curriculum. I perceive this as a significant flaw in the design as the experience is not mutual and may increase perceptions of stereotypical hierarchies. The second poster explored medical students actually working as a nurse and a pharmacist through trans-professional learning (Ratanachai, 2015). Results suggest that the medical students' experience aided their understanding of the multi-tasks of the other professions and encouraged their commitment to provide support to 'their healthcare team'. This method raises similar concerns due to its asymmetry. Medical students were allowed to work as other professions, but they would not have their unique skills or motivations. Attempts by medical students to learn everything another profession can do may imply attempts to control them in the future. Other professions were not able to work as medical students. It is feasible that this would heighten perceptions of profession based hierarchies, in addition to providing the stated benefits. This thesis proposes truly symmetrical shadowing experiences for all professions involved including opportunities for reflection and debriefing.

### Expanding the Recognition of Errors

The recognition of errors was an inductive process, emerging from the data as the weeks progressed. Being able to look back through my detailed field notes demonstrates the value that this methodological approach has provided. It also established the first independent insight into all types of errors across the veterinary team. This is novel in veterinary error research which is a limited field currently including research on prevalence of clinical errors in specific areas such as anaesthesia (McMillan, 2014). Previous research has also used methods, such as surveys, which provide retrospective results, and therefore can be postulated as only focussing on major errors relating to the patient (Mellanby & Herrtage, 2004).

The identification of interprofessional errors and suggestions for improvements has the potential to be an evidence base of the benefits of interprofessional working which is often lacking in the literature.

The benefits of the methodological approach will be revisited later in this chapter, but first a consideration of implications for policy is provided.

## Implications for Policy

### The RCVS – Errors and Discipline

The consideration of errors leads to thoughts of blame and reflection on the current state of disciplinary procedures in the veterinary field. Veterinary nurses gained accountability for their own actions in 2011 through the implementation of the new RVN Disciplinary Committee. To date, early 2015, there have been only three hearings of the RVN Disciplinary Committee (outlined in Chapter One). These hearings are beginning to identify the complexity of disciplining two professions which are involved in the same case, but who have different roles, and where one professional group remains under the guidance of the other for a significant part of their work. The rulings have attempted to apportion blame appropriately between those involved, while acting fairly to all parties. This was especially obvious in the reports of a veterinary surgeon agreeing for a nurse to take a cat home to nurse it, instead of euthanizing it, where both parties were suspended from their respective professional registers (RCVS, 2015b).

It is, however, challenging for the RCVS to act fairly, given that the interprofessional nature of veterinary teams is under researched. The situation has the potential to become more complex as groups gain in status and new occupations arise. Therefore, adverse events are increasingly likely to involve multiple members of the veterinary team. This thesis has begun to explore the concept of errors, not through retrospective questionnaires, as has been conducted previously, but through in-depth observations of real work. The results, therefore, assist in understanding the systems nature of errors within veterinary practices.

Within the modern day climate of demanding consumers, complaints to the RCVS will continue to be received and, as indicated, the error may involve multiple members of the team. In order to achieve the appropriate regulation of the

professions and occupations involved, and to discipline them fairly, it is imperative that interprofessional working in the real world is better understood. This thesis has demonstrated the need for further research on both typical working interactions and emergency based interactions, including consideration of the multiplicity of factors which lead to errors and customer complaints.

## **The Policy Drive for Interprofessional Teamwork Skills**

The topic of IPW/L, and education, addressed in this thesis is within the direction of travel of veterinary policies in the UK and worldwide. In the field of veterinary education, as in other related areas such as medicine, an interest in competency/outcomes based curricula has been growing. There is increasing acknowledgement of a requirement for broader competencies and skills. This means going beyond the competency of, for example, performing surgery correctly, and the associated individual technical skills (such as scrubbing up), to professional skills and the outcomes of client care. These generic professional skills include communication, clinical reasoning, self-directed learning and team working.

I will now draw on influential reports to illustrate the policy view of interprofessional team working. In medicine, one of the widest reaching reports which included such outcomes was Tomorrow's Doctors. 'Outcomes 3 – The doctor as a professional' point 22 is detailed below:

Learn and work effectively within a multi-professional team.

- (a) Understand and respect the roles and expertise of health and social care professionals in the context of working and learning as a multi-professional team.
- (b) Understand the contribution that effective interdisciplinary teamworking makes to the delivery of safe and high-quality care.
- (c) Work with colleagues in ways that best serve the interests of patients, passing on information and handing over care, demonstrating flexibility, adaptability and a problem-solving approach.
- (d) Demonstrate ability to build team capacity and positive working relationships and undertake various team roles including leadership and the ability to accept leadership by others. (General Medical Council, 2009, P27)

Similar reports have been created in the veterinary discipline. In the USA, the North American Veterinary Medical Education Consortium (NAVMEC) created a report in 2011 entitled 'Roadmap for Veterinary Medical Education in the 21st Century', based on the changing landscape of societal needs, veterinary medicine, and veterinary medical education (NAVMEC, 2011). One of the five strategic goals is to 'Ensure that admissions, curricula, accreditation, and testing/licensure are competency driven'. Core competencies of all graduating veterinarians in this report include 'One Health Knowledge: Animal, Human, and Environmental Health' and 'Professional Competencies' incorporating communication, collaboration, management (self, team, system), lifelong learning, leadership and adapting to changing environments.

In the UK, the recently updated, RCVS's Day One Competencies (RCVS, 2014), also outline general professional skills and attributes including 'Work effectively as a member of a multidisciplinary team in the delivery of services'. The accompanying guidance notes:

The team may include veterinary nurses, practice managers, technicians, farriers, nutritionists, physiotherapists, veterinary specialists, meat hygiene inspectors, animal handlers and others. The veterinary surgeon should be familiar with and respect the roles played by others in the team and be prepared to provide effective leadership when appropriate (RCVS, 2014, P5).

The associated Day One Skills (RVC, 2011) include interprofessional aspects in relation to communicating, both face to face and in writing, and taking into account any communication differences that people might have due to their professional status.

An international survey to assess the importance of competencies in professional practice and education, led by a team in The Netherlands, included two competencies which incorporated interprofessional elements: communication ("Communicate effectively with clients, colleagues, other personnel, and third parties") and collaboration ("Collaborate effectively with colleagues, practice assistants, and third parties within and outside one's own organization") (Bok et al., 2014 p913). There was global agreement over the importance of these competencies for practices and their need to be included in education. It is necessary to match the skills acquired in education with the skills that are necessary in the current market and which enable career and economic success and work

satisfaction, such as interpersonal skills (Jaarsma, Dolmans, Scherpbier, & van Beukelen, 2009).

This thesis has clearly touched upon some of these issues through the identification of interprofessional working and learning. It has done so in a unique view of the veterinary team. Veterinary policy documents are, however, not forthcoming with suggestions as to attaining these new competencies. This is comparable to the human healthcare field. In an evaluation by The United Kingdom Centre for the Advancement of Interprofessional Education (CAIPE) with The British Educational Research Association (BERA) entitled 'Evaluations of interprofessional education: A United Kingdom Review for Health and Social Care', several reports were identified which:

invoke "shared learning" to cultivate collaboration, although they are invariably silent about the means by which this will be achieved (Barr, Freeth, Hammick, Koppel, & Reeves, 2000, P6).

The evaluation goes on to review publications pertaining to shared learning, or IPE, as a means of teaching these new and challenging professional skills. A distinct contribution this thesis makes to veterinary education is the acknowledgement of the additional skills and outcomes related to interprofessional teamwork, which is a pressing concern made evident by this research into the modern day veterinary team. There is, therefore, an ensuing necessity for institutions of veterinary higher education to consider ways to teach these skills and outcomes, which will undoubtedly include IPE. Specific suggestions are outlined in the following section.

## **Implications for Institutions of Veterinary Higher Education**

### **Definition of IPE**

The potential of IPE has been signposted throughout this thesis. Before IPE is examined in more detail, a definition will be provided. A common definition is that from CAIPE who define IPE as follows:

Interprofessional Education occurs when two or more professions learn with, from and about each other to improve collaboration and the quality of care (CAIPE, 2002).

IPE is therefore more than two professions listening to a lecture in the same hall. Its essence involves actively learning from each other. The aims of IPE according to this definition include improving collaboration. This, it may be assumed, could be

unpacked to encompass benefits for practitioners in terms of improved communication between professions and a positive working environment. Improved quality of care is an inclusive term which could potentially relate to several measures. For example, better health outcomes including reduced mortality, reduced hospitalisation time, lower cost and more.

## IPE Outcomes

IPE is a growing field in healthcare. Despite this, measurement of the outcomes of educational intervention is difficult. While demonstrating improved health outcomes is undoubtedly the holy grail of IPE, it can be difficult to prove direct links between IPE interventions and measurements such as those identified above. Systematic reviews have explored IPE and they report various results. One of the most recent, an update on the Cochrane review (Reeves, Perrier, Goldman, Freeth, & Zwarenstein, 2013) located nine additional studies to the six original studies in a previous review (Reeves et al., 2009). Of the fifteen studies, the majority were random control trials with comparisons between IPE interventions and no interventions. The review states:

Seven studies indicated that IPE produced positive outcomes in the following areas: diabetes care, emergency department culture and patient satisfaction; collaborative team behaviour and reduction of clinical error rates for emergency department teams; collaborative team behaviour in operating rooms; management of care delivered in cases of domestic violence; and mental health practitioner competencies related to the delivery of patient care (Reeves et al., 2013, P2).

Four studies showed mixed (both positive and neutral) outcomes and four suggested that the IPE intervention had “no impact on either professional practice or patient care” (Reeves et al., 2013). No negative effects of IPE were reported. A recent review of IPE (Thistlethwaite, 2012) has suggested that evaluation methodology should be improved, and that educators need to define learning outcomes and match them to learning activities for constructive alignment. Support and evidence for medical IPE is therefore growing; however, IPE specific to veterinary groups has received little space in veterinary education literature.

In a review of the Journal of Veterinary Medical Education, I performed a search of the word “interprofessional” (inclusive of inter-professional) in April 2015 which elicited 12 results. The only two relating specifically to veterinary surgeons and veterinary nurses or other members of the veterinary practice team were those



authored by myself and my previous colleagues (Kinnison et al., 2011) and current supervisors (Kinnison et al., 2014). The remaining ten articles pertained to One Health style IPE involving veterinary surgeons (only) learning with members of the healthcare professions. One paper extended this concept to include an investigation of how veterinarians interact with those in non-healthcare roles such as pharmaceutical company representatives, members of law enforcement and the clergy (Root Kustritz et al., 2013).

This thesis supports the need for more research into veterinary team specific IPE, and would reiterate the view from healthcare that context, evaluation and assessment should be areas of focus.

## **Potential Contexts for Veterinary IPE**

### **Clinical Skills Centre Activities**

The observations during the case studies identified several potential contexts for IPE initiatives. Veterinary surgeons and nurses work together primarily during surgical procedures, therefore, a training opportunity which took pairs of students through the surgery flowchart described in Chapter Seven, within a clinical skills centre, is suggested to be advantageous and relevant to practice. This would provide an understanding of roles which is an issue frequently cited in IPE research. The topic of operations could be expanded to include more detail on anaesthesia, a complex subject which both groups must study, through more practical sessions, small group learning and lectures. Observations also revealed the two groups work closely together during diagnostic imaging; for example positioning the animal for radiographs and considering exposure rates. This could form another clinical skills IPE station.

### **Underlying Recognition of Professional Motivation**

The important recognition regarding differing professional motivations that this thesis promotes leads me to suggest that this notion should underlie all IPE initiatives. Facilitators must be aware that differences of opinion may exist and should provide a safe environment for opinions to be shared and explained. Similar suggestions for IPE to be based on the acknowledgement that students from different professional groups may have different approaches to learning and

collaboration have been made in healthcare (Liljedahl, Boman, Fält, & Bolander Laksov, 2015). Differences in opinion can be valuable; however, focussing on patient centred care by all professions will allow the mutual object of activity, or motivation, to remain clear.

## Ethics

One of the most notable differences between veterinary surgeons and veterinary nurses in relation to motivation, as outlined above, was with regard to pain relief. Studies in healthcare are beginning to address the differences in understanding of pain relief between nurses and physicians, for example, through case based interprofessional simulated education (Salam, Saylor, & Cowperthwait, 2015). The concept of pain relief highlights a broader area – ethics – which could be a focus for IPE initiatives. Both veterinary nurses and veterinary surgeons must attend lectures and directed learning sessions on ethics, and it is suggested that bringing the two professions together could be advantageous in terms of resources (e.g. teacher time) as well as highlighting early on in their careers the opinions of other groups. Relatively little training is provided on the complex topic of euthanasia, and this may be a related contextual area.

## Communication Skills

Communication skills training could address these multifaceted matters. Communication skills are increasingly being emphasised in veterinary education, and all UK veterinary schools have included communication skills training in their curricula (Mossop et al., 2015). This training, however, relates to communication between a veterinary surgeon and a client in a similar way that communication for physicians is primarily with patients (Stone, 2010). It is proposed that scenarios should increasingly include communication skills between veterinary surgeons, veterinary nurses, other members of the team and clients. For example a scenario, possibly embedded within a case simulation, could be created which addresses the need for traditionally lower status individuals such as nurses to speak up to veterinary surgeons when they are about to make a mistake; an issue first mentioned in Chapter Five. This has been developed in healthcare (e.g. Pian-Smith et al., 2009). Another scenario could involve both a veterinary nurse and veterinary surgeon communicating with a difficult client, for example an angry client regarding an error, or a distressed client during the euthanasia of their pet. Further examples

could explore strategies for disagreement to achieve the optimal outcomes for both professions, and patients/clients (Rockwood, 2015).

## Challenges to Successful IPE Initiatives

There are however several challenges to incorporating IPE in veterinary curricula which have also been seen in medicine and have meant that IPE has failed to be truly established in medical and nursing schools (Langendyk et al., 2015).

### Attitudinal Differences – Change of Culture

There may be attitudinal differences between the student groups (and those involved in teaching). For example, in a healthcare postgraduate context, Reid et al. (2006) illustrated nurses' more positive attitude towards teamwork and collaboration compared to GPs, and Horsburgh et al. (2001) in a study of medicine, nursing and pharmacy students found that nursing students were more supportive of the benefits of IPE than medical students. These results were mirrored by our previous research which used the Readiness for Interprofessional Learning Scale (RIPLS). The results demonstrated that prior to an IPE intervention, veterinary students had a higher 'Professional Identity' score than veterinary nurses, indicating a more negative attitude to IPE and a view of their profession as isolated from nurses (Kinnison et al., 2011). After the intervention, there was no statistically significant difference between the professions in the professional identity score, indicating that the intervention improved the veterinary student view of the veterinary team.

Considered in relation to IPE, social identity and the contact hypothesis suggest that prejudices between groups can be diminished by bringing the groups together, under certain conditions, but that individuals who highly identify with their profession can experience threats during IPE (Hean & Dickinson, 2005). One condition of the contact hypothesis is equal status and is a challenge for IPE where the professions are of different historical levels, and as identified, veterinary surgeons have more assured professional identities. Significant effort is required to bring about the value of veterinary IPE, in parallel with the (not trivial) requirement for professional working cultures to change. The concept of the interprofessional team should be an undercurrent during the whole curriculum. This means all educators need to provide a united front rather than show a hidden curriculum of interprofessional power. The "Interprofessional Education and Practice Guide No. 1" (Hall & Zierler, 2015)

described one example of developing faculty to facilitate IPE. It highlights the need for training exercises to be context dependent, experiential and allow peer feedback, much like the subsequent IPE sessions that these educators will facilitate. Research regarding the educators' opinions would be useful in determining the need for training of all educators in interprofessional appreciation.

### Logistical Challenges

There are also significant logistical challenges with regard to getting members of the two (or more) professional groups together in one location on a repeated basis. The RVC is fortunate to have both veterinary students (years 3-5) and veterinary nursing students together on one campus. However, with current curricula and timetables, the veterinary nursing students spend a significant amount of time away on placements and veterinary students are also off site for extended periods of extra-mural studies. Additionally, the huge disparity in student numbers adds a challenge to truly interactive IPE. At the RVC there are approximately 250 veterinary students per year, whereas there are only approximately 50 nurses. This makes any suggestion of pair based IPE difficult. The University of Bristol also offers a veterinary nursing degree whereby students are on the same campus as veterinary students. The other UK veterinary schools, however, face further challenges if they are to implement veterinary surgeon-veterinary nurse IPE as they do not offer their own nursing degree and must seek links with other colleges. This has already been achieved by the University of Nottingham (veterinary students) and Nottingham Trent University (veterinary nursing students).

### Online Learning

A potential extension of IPE would be to make use of online tools or distance learning. This challenges the concept of IPE, as it traditionally requires face-to-face time in practical contexts so that professions can learn from and with each other. Online IPE would be more likely to focus on learning about each other. This is a start, but it is a low level approach to IPE. I created one such example with colleagues from other veterinary schools which can be accessed at [http://www.nottingham.ac.uk/toolkits/play\\_5724](http://www.nottingham.ac.uk/toolkits/play_5724). We promoted the tool via the Veterinary Record (Kinnison, 2014), as a way to introduce IPE to groups without access to other professions, for free, at any time. I have also created a short e-lecture to introduce veterinary students to the concept of interprofessional working,

which is accessible to RVC students via their student portal as well as globally as a VET Talk (<http://ivsascove.wix.com/ivsascove#!vettalks/c7e4>).

I would like to hope, however, that institutions of veterinary higher education will be inspired to aim big and seek collaborations with nursing schools near them, even if they do not also train veterinary nurses within their universities. Western University of Health Sciences' IPE curriculum is a model example of a cross-institutional collaboration offering IPE to students of several professions including veterinary science. Not only is it a collaboration between professions and between institutions, but it also crosses vast distances, being offered in campuses in both California and Oregon!

## **Contribution to Research and Plans for the Future**

In the final chapter, this thesis' contribution to the field of workplace learning and its contribution to the methodology for researching IPW/L will be outlined. In addition, thoughts regarding areas for future study will be presented within sections relating to higher education IPE, practice and policy.

## **Chapter Ten: Contribution to Research and Identified Areas for Further Study**

### **Introduction**

In the previous chapter, the implications of my research for veterinary practices, policy and institutions of veterinary higher education were explored. In this final chapter, I will consider the thesis' more general contribution to research, specifically the workplace/professional learning and researching interprofessional working and learning. I will then focus on potential areas for further study as identified through this research.

### **Contribution to Research**

#### **Contribution to the Field: Workplace Learning**

This thesis is indebted to the theories of workplace and professional learning that were explored in Chapter Five. Theories such as legitimate peripheral participation, boundary spanning, distributed cognition and knotworking have aided my understanding of the complex relations within teams. However, they do not underlie all the outcomes of this study and therefore my research has added to this literature.

#### **Promoting an Interprofessional View of Workplace Learning**

As I concluded in Chapter Five, seminal (Lave and Wenger) and secondary literature (Billett and Fuller and Unwin) on workplace learning has tended to focus on one professional group (with the exception of Engeström and Hutchins as explored below). Legitimate peripheral participation, coming out of situated learning and alongside communities of practice, pays attention to the apprenticeship of an individual, moving from the periphery of the uniprofessional community to the centre, while Billett's work highlights the nature of the workplace affecting what the individual learns, and also the individual affecting what they get out of the learning. The most significant addition that my research adds, through its exploration of interprofessional interactions via SNA and embedded case studies, is therefore an interprofessional lens on workplace learning and working, which is a strength of this study. These professions are each separate communities of practice (explored as activity systems) which interact together, but without the desire to advance within the community of another profession. My observations of IPW/L as depicted in

Chapters Four and Seven therefore demonstrate aspects neglected in traditional workplace learning theories.

### **Adaptation of Knotworking in Permanent Teams**

Although the concept of Engeström's knotworking champions an interprofessional view of working, I have also been required to expand on this view, as I first considered in Chapter Five. Engeström's notion of knots is fleeting and unpredictable, however my observations in Chapter Seven have shown that they can occur on a regular and recurring basis, albeit with membership changes, within a permanent large team, in what could be called 'plaiting'. Knotworking has also been suggested to lack appreciation of hierarchical challenges including issues of power which are part of the culture and history of groups. This thesis has shown the persistence of traditional hierarchies alongside new value-rationality based interactions within collaborative communities (Adler & Heckscher, 2006). Change will take time and despite the increasing status of veterinary nurses in policy, the potential new division of labour is still working through practices which have complex, though fluid, structures.

### **Understanding Evolving Roles and Hierarchies**

Hutchins also considers multiple professions, and his early research on distributed cognition (1995) outlined the specific context of military ship navigation between a team of enlisted men and officers with stringent tasks. While distributed cognition is of benefit in considering veterinary teams, this thesis relates to professions and occupations undergoing role changes and subsequent power struggles, as detailed from Chapter One. It therefore adds to the concept of distributed cognition (or team cognition) through its more complex hierarchical exploration. The idea of jostles for jurisdiction (Bechky, 2003) is important here, and the current research enhances this conception within the veterinary setting between professions and occupations whose status is affected by policy, as well as, for example, colleague and public perceptions.

### **Linking Teamwork, Errors and Blame**

Where there is a lack of understanding of roles and motivations, within a climate of historical hierarchy and power relations, work will be inefficient and errors may occur. Literature regarding errors and workplace learning are often separate and authors such as Guile (2011), for example, concentrate on a group solving

problems, not on a sense of blame. This thesis extends error research both by focusing on collaborations and systemic issues, as well as by incorporating blame, in this case principally to receptionists. The link between outcomes of errors and teamwork which is identified here is important. Previous research into teamwork has often failed to have the impact it deserves. By strengthening the link between teamwork, service implications and a reduction in errors, this research should command the attention of those able to distribute finances, for example, for further research and on staff development. This link therefore brings together the academic communities who study teamwork and the professional communities who experience it.

## Summary

I would argue, therefore, that my conceptual critique of the cited authors and theories has enabled me to highlight both the complex interpersonal dimension of learning (including interprofessional) and the sustained nature of knotworking within professional teams. It has also linked previously disparate areas of research. As a consequence, I have shown (and expand upon below) how the individual and experimental methodologies which these writers use need to be supplemented with real life observations and SNA, if we are to fully understand workplace interactions, especially the complex IPW/L that exist in veterinary practices. Therefore, in addition to adding to the professional and workplace literature, this thesis also contributes to research methods regarding IPW/L as explored below.

## Contribution to Researching Interprofessional Working and Learning

The objectives of this research were to understand how modern day veterinary teams work and learn together interprofessionally, and to consider recommendations for veterinary educators regarding interprofessional education. To understand the teamwork within practices, first a large scale consideration of interprofessional interactions was required to identify an overview of trends. Subsequently, in depth methods were required to critically probe these interactions within different settings. The overarching case study methodology is a strength of this study.



## Mixing Methods in a Novel Context

The methodological approach undertaken in this PhD therefore involved mixed methods, as described extensively in Chapters Three and Five. I created this methodology by taking two established methods, social network analysis (SNA) and case studies, and merging their structure and interpretation through a process of triangulation, making them inextricably linked. Trends within various literature fields such as workplace learning have been to concentrate on either large scale surveys or smaller scale qualitative studies. Bringing the two together to produce a complementary method occurs less often but has benefits in terms of one area informing the next, as well as elaborating and expanding on each other as seen in this thesis.

The research began with SNA questionnaires, used to document the pattern of interprofessional interactions within veterinary practices. SNA had never been used in this context before. The results demonstrate the prevalence of interaction types and can be used to assess interprofessional issues such as hierarchical interactions. Several publications regarding SNA, such as those that prompted my research (Cott, 1997; Creswick & Westbrook, 2010; Wagter et al., 2012) stop there. However I used observational based SNA to validate the questionnaire based SNA. The results for the observational SNA were created via the shadowing week of the embedded case studies, enhancing their integration. Observations were shown to reflect the self-reported data. The current research then went further, as here indicated, to probe the communicative nature of the interactions.

Upon completion of the SNA, two embedded case studies were undertaken. The sites were chosen based on their typicality for two types of UK practices as well as their SNA results. The six focus individuals in each case were also selected based on their SNA results, one of each professional group being central to the sociograms and one being more peripheral. Personality scores indicated some difference between the core and peripheral individuals, with core individuals being more conscientious, neurotic and open; but interestingly, no more agreeable or extraverted. These personality findings should be interpreted with care however, as there were only six core and six peripheral individuals involved. In both cases the core veterinary surgeon happened to be a partner/director and the core veterinary nurse a head/deputy head nurse, while the core administrator was the practice manager or HR manager. This emphasises the importance of those in appointed leadership roles for practice interactions.

The case studies allowed a deeper understanding of the relationships within veterinary practices to form. The sequential design of the three weeks within the case studies was seminal to their success. The first week allowed the whole team to be observed within set locations such as reception and the operating room. The second week enabled the flow of one person's interactions to be considered by following focus individuals for prolonged periods of time between rooms and locations. The final week of interviews gave the participants a voice, allowing them to provide their personal opinions on interprofessional working and learning. This methodology provided a wealth of data which has never been explored in such a way before. It enabled significant themes such as errors to form inductively from the data through my immersion in the research.

The overarching case study, involving sequential mixed methods, is therefore one of the benefits of this study, and is recommended for the investigation of complex team interactions in other contexts.

### **Adaptation of the CHAT Framework**

The underlying framework of the study is also of interest. The concept of CHAT, especially the idea of history and elements of activity systems (instruments, objects of activity, rules, division of labour and community) were utilised. However the methodological processes from CHAT of bringing about change, such as the Change Laboratory were not conducted. CHAT has also previously been adopted principally for researching language and language learning. In this research, CHAT was instead used as a theoretical base to investigate the current working and learning within veterinary practices. CHAT proved useful, for example, in conceptualising professions as subjects, different branches as different communities, boundary crossing artefacts as instruments, and the different motivations of professions in terms of their objects of activity. CHAT has been quoted as a best kept secret of academia and a neglected legacy of Vygotsky (Roth & Lee, 2007). This thesis hopes to encourage other researchers to use CHAT as a theoretical foundation for their research.

### **Identified Areas for Further Study**

The findings from this research are not designed to be conclusive answers which signal the end of the research. The original aim of the study was to explore current

day veterinary interprofessional working, with a view of using this as a basis for future work which tracks the development of the veterinary team and creates initiatives to promote effective interprofessional working and learning. Mirroring the implications from the current research, areas for further study therefore centre on higher education IPE, practice initiatives and evolution, and policy. These suggestions address the limitations of the current study, identified within the text below.

While those with a strong scientific, positivist, background may suggest that the few participants (11 practices in the SNA and two as embedded case studies) are a limitation of the study, I do not consider this to be the case. By covering many factors of veterinary practice, the 11 SNA participants are a good representation of current practice teams. They also allowed for the inclusion of 279 SNA questionnaire responses. The choice to focus on just two practices, as embedded case studies, allowed me time to become immersed in the teams and understand the dynamics. Generalisation should be done with care, but it can be assumed that practices with similar factors, such as team composition, to either Cedar Vets or Field View Vets may have comparable interprofessional working. Understanding the principles is relevant to all practices, and therefore, the results of this thesis should be transferred, applied and examined in other situations.

## Higher Education IPE

As identified in the previous chapter, implementing IPE into national and international veterinary curricula will be challenging. The interest and enthusiasm of members of staff in positions of power will be paramount. It is suggested that curriculum decision makers should be interviewed to ascertain the most feasible way of incorporating IPE. This stakeholder consultation should include members of the veterinary nursing school in universities fortunate enough to have one. Alternatively, it should include external nursing education centres close to veterinary schools.

A potential limitation of the current research is its tendency to focus on veterinary surgeons and veterinary nurses. I have tried to address this through the consideration of administrators, and some implications for non-clinical work have been suggested. However, it is the clinical relationships which tend to draw the

attention. Future IPE will almost certainly centre on this dyad; however any possibilities for veterinary and veterinary nursing students to learn from, for example, experienced practice managers should also be expanded upon.

It is also necessary to assess if the students are ready for interprofessional learning and to be able to effectively evaluate IPE initiatives. The Readiness for Interprofessional Learning Scale (RIPLS) was developed by Parsell and Bligh (1999), and has been adapted for various settings. The scale has been used in previous work by myself and colleagues as a way to assess the impact of educational interventions. However, it should be validated for use in this field, and an extensive survey of different veterinary schools should be conducted with this aim. My initial plans for this project involved validation and use of RIPLS. However, after the PhD upgrade, the plan was revised to allow more time to focus on the embedded case study research, which is a vital basis for future design of IPE initiatives. A new paper has shed doubt on the original RIPLS due to low internal consistency of two sub-scales, and promotes instead investigation of individual scales for different competencies (Mahler, Berger, & Reeves, 2015).

Through the use of stakeholder consultation, RIPLS – or alternative scales, and the results of this thesis, IPE initiatives based on real life experiences should be developed. While common sense suggests that IPE initiatives are a good idea, and proof of patient benefits is challenging to attain, it is important that we still strive to evaluate new initiatives. Future work on evaluating interprofessional pedagogic tools is underway in healthcare, and should be replicated in the veterinary field.

## Practice

This thesis aimed to create a snapshot of IPW/L. Future work regarding core practice teams should include a longitudinal aspect. I have had positive feedback from a number of my practices who have suggested that they will make changes based on either the SNA or case study results. The practice manager at Cedar Vets said:

“Thank you very much for choosing us as your chosen practice, thank you for the feedback and report we will use this as an invaluable tool to learn and progress from”.

It would therefore be of interest to observe changes in behaviour based on a combination of the following:

- Conduct SNA and hold practice-wide SNA feedback sessions
- Spend at least a week observing the practice and provide general feedback
- Facilitate practice based interventions, such as the aforementioned 'day in the life of' shadowing, profession presentations and reflective meetings, in addition to initiatives identified in previous research such as Talking Walls (Kinnison et al., 2011), the change laboratory (Y. Engeström, Virkkunen, Helle, Pihlaja, & Poikela, 1996)
- Set up practice targets for continuing to promote effective IPW/L without a facilitator
- Interview several members of the team prior to, immediately after and several months after interventions
- Repeat SNA and observations
- Compare frequency of errors (with any range of consequence) before and after interventions to add to the evidence base for the advantages of interprofessional working
- Identify challenges to improving IPW/L, for example if veterinary nurses identified potential roles they could fulfil, but which have not been incorporated into the practice protocols. Aim to create solutions

More extensive observations within the same practice, without intervention, would also be of interest to explore the changing nature of work between the professions as veterinary nurses further advance their professional status (once the title has been protected) and as other occupations may strive for a similar standing. This thesis has demonstrated that change in hierarchy, for example, will not be instantaneous, and it may take years for any as yet unknown effects of the professionalisation of veterinary nurses to become apparent.

There will also be continued changes to the business nature of veterinary work, with the increasing rise of corporations. Employment decisions may progressively be based on factors such as personality, as differentiating between the increasing numbers of newly qualified veterinary surgeons becomes challenging. The current study touched upon the issue of personality and its links to network position by assessing the personality of the 12 focus individuals. This number is however low and leads to caution in interpreting the results. Future work could assess the

personality of all members of the team and correlate this to network position. Triangulation with observational data may be able to conclude what is the best combination of personalities to create a successful team. Recent research into the work climates of individuals at different types of practice (traditional private, charity and corporate) have suggested that members of staff identify less caring climate dimensions within corporates as well as less independent climates and more practice-rule based climates (Price & May, 2015). Although responses were low, this identifies further questions in terms of differences between the professions within each context, and the potential dissonance from preparation for the world of work in education to working life.

### The Extended Team

The extended team (beyond the practice employees themselves) was a concept which did not provide fruitful results within the current project. This was potentially due to a lack of interactions outside of the core practice, a desire to keep the extended team anonymous, and a lack of responses by the identified external individuals. As occupations such as animal physiotherapists and animal behaviourists aim for regulated qualifications and representation, and new occupations evolve, interactions between an extended team and the core practice team will be likely to increase. Future work should seek to specifically explore this concept.

### Policy

The titles of both veterinary nurses and surgeons are potentially changing. Veterinary surgeons are now able to use the courtesy title 'Dr', indicating a further rise in status. On the 19<sup>th</sup> May 2015, Lord Trees submitted the 'Veterinary Nurses (Protection of Title) Bill' to the ballot of the House of Lords, which would further advance their professional status level. The first reading House of Lords took place on 10<sup>th</sup> June 2015, but the second reading is yet to be scheduled. In addition, a petition on the UK Government and Parliament e-petition website has been created. With over 10,000 signatures, the Government is expected to respond to the petition by mid-October. Continuing to consider policy is an interesting way of considering the relationships, especially with regard to status, within the veterinary field.

As indicated in the previous chapter, complaints handled by the Disciplinary Committees of the RCVS will be increasingly likely to contain elements of

interprofessional working. Decisions and sanctions must be fair between the professions, while linked to their individual Codes of Conduct. Therefore, in parallel with research on systemic errors within practice, policy research regarding new cases would be advisable.

## Conclusion

Veterinary teamwork in practice is an underexplored area. This thesis has provided a detailed exploration of the phenomenon through the use of a mixed methods approach to research. The results have depicted practices with a team ethos whereby interprofessional trust and value is palpable and differences in perspectives are utilised to attain novel decisions. These teams function informally, with social interactions influencing work interactions. They also function formally through a hierarchy of information cascade, interprofessional meetings and professions with accepted roles and accountability for their actions. However there are challenges to IPW/L. The organisation of veterinary practices in branches or in large teams with part-time staff restricts interactions across structural holes. SNA has identified a hierarchical structure to higher order interactions such as problem solving and influencing behaviours. Individuals, especially veterinary surgeons interact intraprofessionally, as opposed to interprofessionally, limiting the type of people from whom they receive resources. Different motivations for work can be summarised as: veterinary surgeons focus' on curing, veterinary nurses' focus on welfare, administrators' focus on the business and receptionists' focus on the client. These can lead to disagreements regarding work and potentially dissatisfaction. The inductive nature of the study resulted in the identification of system errors, strongly related to communication, alongside the presence of blame. During the final chapters of the thesis, I highlighted some practical solutions and areas for further study relating to evaluating, assessing and promoting veterinary teamwork in the modern era. It is important that veterinary services are provided by a well-functioning team who fulfil the needs of patients and clients. Undergraduate IPE and practice initiatives are central to this aim.

## Feedback

The results of the thesis have been presented to the participating practices, to colleagues, at conferences, and have been published in peer reviewed journals.

The feedback that I have received has been positive and encouraging. It has also contributed to the dependability of my analysis. A small selection of comments and details of my publications from this research follow.

#### Comments:

“Thank you very much for choosing us as your chosen practice, thank you for the feedback and report we will use this as an invaluable tool to learn and progress.” Christina, Cedar Vets

“Thank you for this information, I found it interesting and informative... I am undertaking a period of self development and trying to raise the profile of HR within the practice, part of which includes communication between all workers ... any additional information you can give which would help me develop the function/myself further would be extremely helpful.” Personnel Administrator, SNA practice

“Tierney, This is brilliant!” Partner, SNA practice

“I think you are doing some really exciting research, and would love to be kept up to date how your qualitative research within the various veterinary practices will go. I think that triangulating your findings with in-depth qualitative data would be really exciting.” Reader in Learning Analytics, Open University UK, in response to conference presentation

“I have lived each one of these situations and can relate to each comment..... you have put into words what I have known for years.... Fab! I love that you have written this and really hope that something will come of this as far as curriculum goes.” Learning Development Officer (RVC) and Veterinary Nurse



Publications from this research:

- Kinnison, T., May, S.A., Guile, D. 2014. Inter-Professional Practice: From Veterinarian to the Veterinary Team. *Journal of Veterinary Medical Education*, 41 (2): 172-178.
- Kinnison, T., May, S.A., Guile, D. 2015. Veterinary Team Interactions Part One: The Practice Effect. *Veterinary Record*, 177: 419.
- Kinnison, T., Guile, D., May, S.A. 2015. Veterinary Team Interactions Part Two: The Personal Effect. *Veterinary Record*, Online First, doi:10.1136/vr.103313.
- Kinnison, T., Guile, D., May, S.A. 2015. Errors in Veterinary Practice: Lessons for Building Better Veterinary Teams. *Veterinary Record*, Online First, doi:10.1136/vr.103327.

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## **Appendices**

### **Appendix 1**

Timeline of advances in professionalisation of veterinary groups in comparison to groups from human medicine

Year		Profession/Occupation: Professional Bodies, First Educational Courses or Registration		Further Details of the First Milestones for each Profession	Members (for selected groups, data accurate on 9/1/2014)
		Human Medicine (yellow)	Veterinary (red), Veterinary Nursing (green) and para-occupations (blue)		
		Both (purple)			
Pre -18000s	1356		Fellowship of Farriers	Called together by the Major in the City of London	
	1518	Royal College of Physicians (RCP)		Founded by Royal Charter	
	1617	Worshipful Company (now Society) of Apothecaries		Founded by Royal Charter	
	1791		Veterinary Surgeon	First UK veterinary school, becoming the Royal Veterinary College	
1800s	1800	Royal College of Surgeons (RCS)		Company of Barber-Surgeons granted Royal Charter to become Royal College of Surgeons	
	1824		Royal Society for the Prevention of Cruelty to Animals (RSPCA)	First animal welfare charity	Includes 400 inspectors (just one of the occupations involved)
	1843	Royal Pharmaceutical Society		Granted Royal Charter. Includes veterinary pharmacy	
	1844		Royal College of Veterinary Surgeons (RCVS)	Veterinary governing body, established by Royal Charter	24,000 MRCVS
	1858	Dentist		Royal College of Surgeons grants licences in dental surgery, veterinarians may consult dentists for advice	
19 00s	1917		People's Dispensary for Sick Animals of the Poor (becomes PDSA)	First PDSA opened	

	1919	Nurse Registration Act		Following a non-statutory register (1887) and the College of Nursing (1916)	
	1920	Chartered Society of Physiotherapy		Royal Charter Awarded	
	1961		Veterinary Nurse	First Animal Nursing Auxiliary Training Scheme (becoming 'veterinary nurse' in 1984)	9,000 Registered or Listed
	1962	Royal College of Pathologists		Including veterinary pathology speciality advisory committees	
	1975		Farriers	Farriers (Registration) Act establishing Farriers Registration Council	2,800 Registered
	1977	British Association for Counselling (and Psychotherapy, BACP in 2000), Pet Bereavement Counsellors		Includes individuals currently known as pet bereavement counsellors	12 identified on RALPH Site
	1985		Association of Chartered Physiotherapists in Animal Therapy (ACPAT)	Established	258
			World Wide Association of Equine Dentistry (WWAED)	Inaugural meeting, developed testing procedure, code of conduct and written standards of practice	
	1993		Veterinary Practice Management Association (VPMA)	Launched - Certificates of Veterinary Practice Management (CVPM) first awarded in 1996	Ranger per practice 0-40, average 0.57 69 holders of CVPM
	1997		National Association of Cattle Foot Trimmers (NACFT)	Association formed by two vets and 11 foot trimmers	105 Fully Licenced
2000s	2001	British Paramedic Association (BPA) now College of Paramedics (CoP)		Latest health professional body; set up after the formation of the Health Professions Council (now Health and Care Professions Council) which required all professions to have representation and regulation	
	2001		British Association of Equine Dental	Founded, includes list of fully	97



		Technicians (BAEDT)	qualified BAEDTs	Members
2002		Certified Clinical Animal Behaviourist (CCAB)	Association for the Study of Animal Behaviour (ASAB) approves accreditation committee for certified scheme	74 Full members of Association of Pet Behaviour Councillors
2003		Meat Inspectors	First awarded RCVS Certificate	
2004		The Society of Osteopaths in Animal Practice (SOAP)	Open to osteopaths with referral letter by veterinary surgeon. Offers university courses in Animal Osteopathy	23 Full Members
2004		Artificial Inseminator	Artificial Insemination (AI) of mares exemption through award of a certificate; AI of cows in 2007	
2006		Veterinary Receptionists	College of Animal Welfare first offer Certificate for Veterinary Practice Receptionist (no longer offered)	
2007		Registered Veterinary Nurse (RVN)	Non-statutory register introduced	
2008		BSc Veterinary Nursing	First cohort starts at RVC, September	
2012		Veterinary Care Assistant (VCA)	VCA program under Government Apprenticeship Scheme	
2012	Registered Nutritionist (RNutr), Animal Nutritionist		Launch of title for members of UK voluntary register, including animal nutritionists	18 UK Animal Nutritionists
2012		Association of Meat Inspectors	Code of Conduct Adopted, first step to professional recognition	

Table 18. Timeline of stages in the evolution of the veterinary groups (with human medical groups for comparison)

## Appendix 2

Example of an SNA questionnaire for core members of the veterinary team.

Names within the table were filled out prior to questionnaire distribution. Some spaces were left for additional members.



### Working and Learning in Veterinary Teams

Dear [NAME]

#### Will you help with this research project?

My name is Tierney and I have gained permission from [CONTACT NAME] for [PRACTICE NAME] to take part in my PhD project looking into working and learning within veterinary teams. I would like to ask you to complete a short questionnaire regarding your interactions with other members of your veterinary practice team. By doing so, I will be able to build up a picture of the interactions at [PRACTICE NAME]. Along with pictures from other veterinary practices in the UK, I will be able to establish an understanding of working and learning interactions in the veterinary field.

The ultimate aim of my PhD is to produce recommendations for colleges and universities regarding teaching veterinary professions and occupations, in order to better prepare students for working in a modern day veterinary team.

Please note that your data will be stored securely and will be used only for the stated research purposes. All responses will be made anonymous. By completing this questionnaire you are agreeing for your responses to be used anonymously in any future reports and publications. You may withdraw from the study at any time, to do so, please contact tkinnison@rvc.ac.uk.

#### What you would need to do

You are asked to indicate your interactions with other members of your veterinary practice team, as of this point in time, on the attached table.

Please put a **tick** or **cross** by each person's name with regard to each of the five possible types of interactions. It is important that **every cell** has either a tick or cross in it; however obviously do not complete the row with your name on.

It is OK for you to place ticks by all individuals for any of the interactions. It is also OK to place no ticks by any of the individuals for any one of the interactions. Please just answer honestly.

If there is an individual from a veterinary related profession or occupation who you interact with, but who is not included in this questionnaire, please fill in their details in the space provided.

Please also make sure that you complete **the personal details section**.

P.T.O.

The five interactions for you to consider are written out in full below. Please study these carefully before you begin the questionnaire. The interactions are also provided in summary form in the table.

1. Who of the following do you receive work related information from?
2. When you feel unsure about something during your work in practice, who of the following do you ask for advice, help, explanation?
3. Who of the following significantly influences your working habits, for example through observation of their work?
4. Who do you talk to about your work activities to develop new ideas or ways to solve problems?
5. Who of the following do you meet socially outside work (not including work functions such as Christmas lunch)?

Thank you very much for providing this information which will assist with visualising interactions in the veterinary practice workplace and will ultimately lead to recommendations for undergraduate education.

Tierney Kinnison  
PhD Student, RVC and IOE

If you have any questions, please don't hesitate to contact me:  
tkinnison@rvc.ac.uk    01707 666990

This project has received approval from the RVC's Ethics and Welfare Committee  
Ref: URN 2013 0086H

## Working and Learning in Veterinary Teams - Questionnaire

Name: \_\_\_\_\_

### Team Interactions

*Please make sure you have read the full questions on the previous page before completing this table*

Network Questions					
	I receive information about work from ...	I ask ... for advice, help	... influences a change on my working habits	I develop new ideas and problem solve with ...	I meet with ... socially
<b>Core Team Members</b>					
<b>Name</b>					
Position					
<b>Name</b>					
Position					
<b>Name</b>					
Position					
<b>Name</b>					
Position					
<b>Name</b>					
Position					
<b>Name</b>					
Position					
<b>Name</b>					
Position					
<b>Extended Team Members</b>					
<b>Name</b>					
Position					
<b>Name</b>					
Position					
<b>Name:</b>					
Position:					
Contact Details:					
<b>Name:</b>					
Position:					
Contact Details:					

## Personal Details

1. Gender

Male ☐

Female ☐

2. Age

16-24 ☐

25-34 ☐

35-44 ☐

45-54 ☐

55-64 ☐

65+ ☐

3. Please list all of your Higher Education (post school) qualifications

---

4a. Veterinary surgeons and veterinary nurses:

If you are a veterinary surgeon or veterinary nurse, how many years of clinical experience do you have?

Less than 10 ☐

10-20 ☐

More than 20 ☐

4b. All other professions and occupations:

If you are not a veterinary surgeon or veterinary nurse, how long have you worked as a member of your current occupation?

Less than 10 ☐

10-20 ☐

More than 20 ☐

5. How many years have you been in your current practice?

Less than one ☐

1-5 ☐

5-10 ☐

More than 10 ☐

6. Are you full or part time?

Full Time ☐

Part Time ☐

Thank you for your participation  
Tierney

## Appendix 3

General project information sheet followed by SNA information sheet sent to the point of contact for each potential SNA practice.

## Investigating Interactions within Veterinary Teams

### **About Me**

My name is Tierney Kinnison and I am a PhD student at the Institute of Education and the Royal Veterinary College (RVC) funded by the Bloomsbury Consortium. I originally studied Animal Behaviour, gaining a BSc and an MSc. I then joined the RVC as a Research Assistant in 2008 where I worked on several projects investigating veterinary and veterinary nursing education. I started my PhD in October 2012.

### **Rationale for the Project**

The veterinary field is continually evolving. It is an especially interesting time at the moment as veterinary nursing undergoes professionalisation and occupations such as practice managers and physiotherapists are becoming increasingly widespread. Veterinary practices themselves are changing, with fewer sole practitioners and an increasing number of practices set up as companies rather than traditional partnerships. It is important that the undergraduate education of veterinary surgery, veterinary nursing, animal science, and other veterinary related occupations, reflects this modern day working life.

### **Aims of the Project**

The project aims to investigate interactions within veterinary teams by first using a method called 'Social Network Analysis' and at a later date through in depth case studies. Recommendations will be made for colleges and universities about training veterinary and related groups of students in order hopefully to better prepare students for the transition to work in veterinary teams. It is hypothesised that this will in turn have benefits for veterinary practices, their clients and patients.

### **Participants**

A range of veterinary practices in the UK are being asked to participate based purely on their geographic location, type and size. Overall it is hoped that practices will be recruited which cover both rural and urban areas, treat mixed and small animals and are small, medium and large in size.

### **Participation – Social Network Analysis**

Your participation is through a survey which investigates the interactions between members of a team and is known as Social Network Analysis (SNA). For more information about SNA, please see the attached document.

You will be invited to see and discuss the results of your practice's SNA when this has been completed. At this stage data from other practices will not be discussed.

Some comparison between practices may be made within my thesis. As indicated below it is a requirement of good research practice and ethics approval that all data will be anonymised, and where appropriate pooled, so that in any comparative discussions identities will be protected.

### **Ethics Approval**

This project has received approval from the RVC's Ethics and Welfare Committee, reference number URN 2013 0086H.

It is a necessity of the SNA approach that real names are used within the survey. All data will be stored securely, either on a password protected computer or within a lockable cupboard. Data will be used only for the stated research purposes. All responses will be made anonymous before any reports or publications are written.

Participation is voluntary.

Anyone may opt out of the survey at any time, simply email [tkinnison@rvc.ac.uk](mailto:tkinnison@rvc.ac.uk).

**Contact Details**

Please do contact me with any questions regarding the project.

Miss T. Kinnison, The LIVE Centre, Hawkshead Lane, North Mymms, Hatfield, Hertfordshire, AL9 7TA

Tel: 01707 666990      Fax: 01707 666991      email: [tkinnison@rvc.ac.uk](mailto:tkinnison@rvc.ac.uk)

**Thank You**



# Social Network Analysis

## **What is Social Network Analysis?**

Social Network Analysis (SNA) is a method which allows interactions within a group to be measured and investigated. The interactions can be anything, from friendships, to world trade, to information exchange. The groups, or networks, can also be anything, from a class of school children, to countries, to a veterinary practice.

## **The Method**

SNA tends to be carried out via questionnaires. All individuals in the network are asked to complete a questionnaire about the interactions in question. In this case, all individuals within a veterinary practice are asked to answer questions about their interactions with other members of the veterinary team which focus on information exchange. It is important that as many individuals as possible answer the questionnaire so that a complete picture of the practice can be formed.

## **The Analysis**

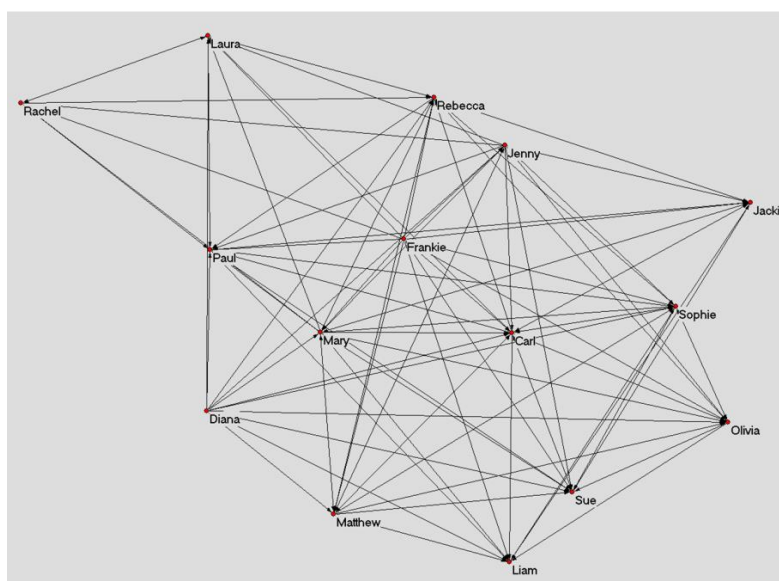
Once the questionnaires have been completed the data are inputted into SNA software on a computer.

This software can create visual maps of the interactions known as sociograms. This example, with fictitious names, shows the interaction of asking for help or advice within a team.

Statistical analysis can also be performed to assess for example how 'dense' the network is (i.e. how many interactions exist out of the total possible number of interactions).

Collecting results from multiple networks allows a greater understanding of variations and similarities.

Please remember, all data collected will be stored securely and will only be used anonymously.



## **Reference**

For more detailed information on SNA, please refer to Wasserman, S., & Faust, K. (1994). Social Network Analysis: Methods and Applications. Cambridge: Cambridge University Press.

## Appendix 4

Examples of personalised reports sent to the practices. All reports contained anonymised details

SNA summary report for Cedar Vets page 343-353

Case study executive summary for Cedar Vets page 354-364

# Social Network Analysis Report

For Cedar Vets

By Tierney Kinnison, PhD Student  
The Royal Veterinary College &  
The Institute of Education

June 2014

## Introduction

Thank you for allowing me to visit Cedar Vets on 28<sup>th</sup> November and 3<sup>rd</sup> December 2013 and distribute questionnaires for my PhD project. In this report I will share the results of the Social Network Analysis which I carried out on the data from the questionnaires. I have tried to maintain anonymity throughout the report through the use of codes rather than names. While it may be possible to take a guess at who is who, please remember that the purpose of this analysis is to consider the team and the way that the team functions together. Throughout my project I am looking for examples of exemplary team working and learning and subsequently here I focus on such examples within your practice, while being aware of areas for potential improvements. I will not compare your practice to the other practices I visited in this report; the report is purely regarding your data.

I suggest that the report is shared with all the members of the practice team. However I ask that you do not share it further than this. I will be publishing a selection of the results in my PhD thesis and potentially in a related journal article. These will contain an element of comparison between the 12 practices I visited. I will share all of this with you in due course. In the following sections I will relate the raw results as well as interpreting the information for you. If you have any questions, please see the 'Contact Details' section at the end of the report for ways to contact me.

*Tierney*

## Summary

Completed Social Network Analysis questionnaires were returned by 30 people giving a 76.9% response rate. The questionnaire asked individuals to describe their interactions with other team members in terms of receiving information, asking for advice, problem solving and being influenced by another. As predicted, the numbers of connections were higher for the information and advice interactions and lower for the problem solving and influence interactions.

Key individuals in the network can be identified through how many times they are sought out for information/advice etc. Key individuals in the Cedar Vets network were a veterinary surgeon (code VS5) and three admin individuals (codes A3, A4 and A5). These individuals should be valued, but care must be taken that they are not under too much pressure. Interactions can occur between the members of the same profession (intraprofessional) or between members of different professions (interprofessional). Veterinary surgeons have many intraprofessional interactions, however they are also interprofessional for some interactions, especially information receiving. Admin interactions follow a similar pattern to veterinary surgeons. For veterinary nurses, there are more interactions with veterinary surgeons than with other veterinary nurses. There is also a similar density of interactions with administration individuals as with other veterinary nurses. Interestingly receptionists tend to be more interprofessional in all four of the interactions than intraprofessional. The results also show that there is a hierarchy of information/knowledge flow between veterinary surgeons and the other professional groups. Members from different branches are quite separate in their interactions.

Improved company cohesion may be gained from increasing interactions between professions and between branches, also through the encouragement of social interactions.

## Demographics

The questionnaire included 39 individuals which make up your network. Completed questionnaires were returned by 30 individuals giving a 76.9% response rate. Table 1 below demonstrates the demographics of the respondents.

Table 1. Demographics for Cedar Vets (some data missing, so may not add up to 39)

Gender	Male 5	Female 25				
Age	16-24 4	25-34 8	35-44 5	45-54 8	55-64 1	65+ 0
Occupation Time*	<10 Years 12	10-20 Years 10	>20 Years 4			
Practice Time†	<1 Year 2	1-5 Years 10	5-10 Years 6	>10 Years 8		
Full/Part Time	Full Time 13	Part Time 13				
Profession	Vet 10	Vet Nurse 6	Office/Admin 7	Reception 15	Other – Non-Clinical 1	

\*Length of Time in Current Occupation

†Length of Time in Current Practice

## Density of Interactions

The questionnaire asked about four work related interactions and a social interaction. These were as follows (and summarised in square brackets):

1. Who of the following do you receive work related information from? [Information]
2. When you feel unsure about something during your work in practice, who of the following do you ask for advice, help, explanation? [Advice]
3. Who of the following significantly influences your working habits, for example through observation of their work? [Influence]
4. Who do you talk to about your work activities to develop new ideas or ways to solve problems? [Problem Solve]
5. Who of the following do you meet socially outside work (not including work functions such as Christmas lunch)? [Social]

The greater the density of each type of interaction, the more this type of working or learning takes place. Density is calculated by dividing the frequency of each interaction by the total possible number of each type of interaction that could take place in your practice. Density scores can therefore range from zero to one. Table 2 shows the density results for the four main work interactions.

Table 2. Frequency and density of Interactions

	Frequency	Density
Information	664	0.448
Advice	389	0.262
Problem Solve	307	0.207
Influence	281	0.190

As you can see the highest density relates to the information receiving interaction. Asking for advice is the next most frequent interaction and problem solving and being influenced by others are less frequent. This is almost as would be predicted. The literature would suggest that influencing behaviour would be a more common interaction than problem solving; however these densities are very similar. The density of 44.8% for information transfer is clearly quite high and represents an environment that fosters transfer of information. The other interactions however are relatively infrequent and it might be worth seeking ways to encourage these behaviours.

These patterns are demonstrated clearly in the diagrams known as sociograms on the following pages. Each dot, or node, represents an individual. Each individual has their own randomly generated number and are also classified by their profession.

The key for the individual's codes is as follows:

Circle	VS	Veterinary Surgeon
Square	VN	Veterinary Nurse
Up Triangle	A	Admin/Office
Down Triangle	R	Receptionist
Box	ONC	Other – Non Clinical

The colours represent the branch from which the individual works.

Each line indicates an interaction; the arrowhead demonstrates the direction of the interaction.

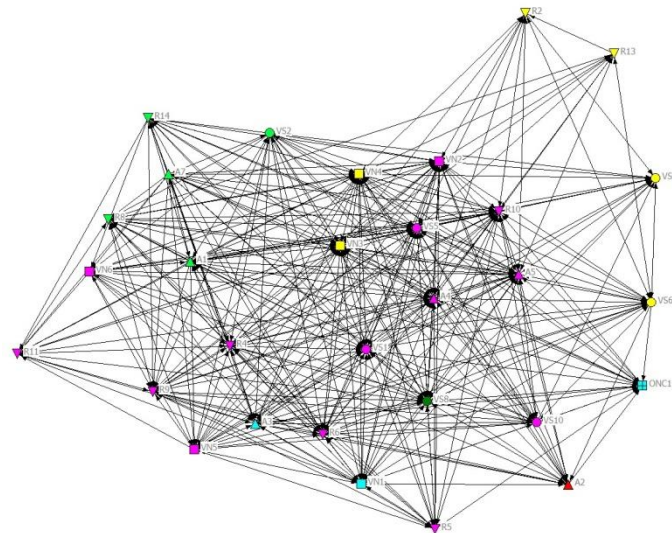


Figure 1. Sociogram for the interaction Information  
(Who of the following do you receive work related information from?)

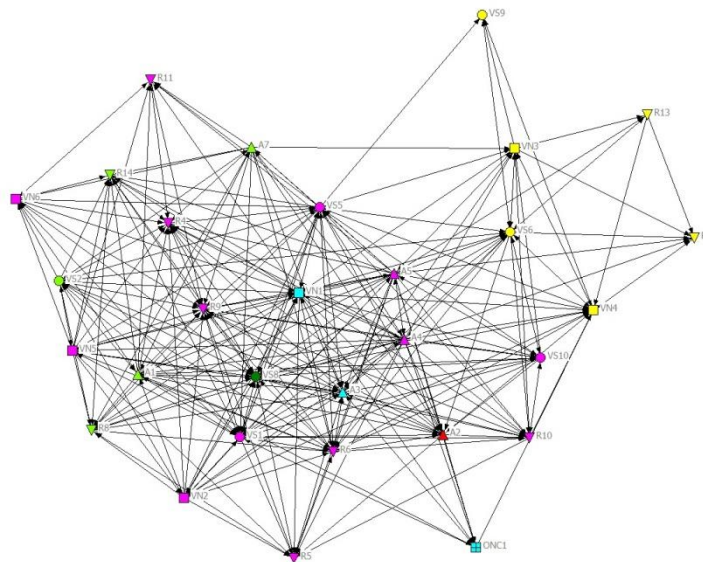
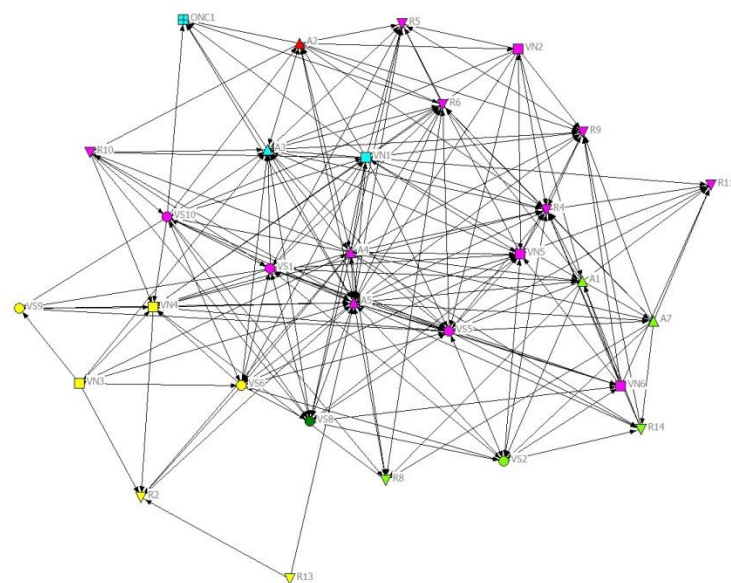
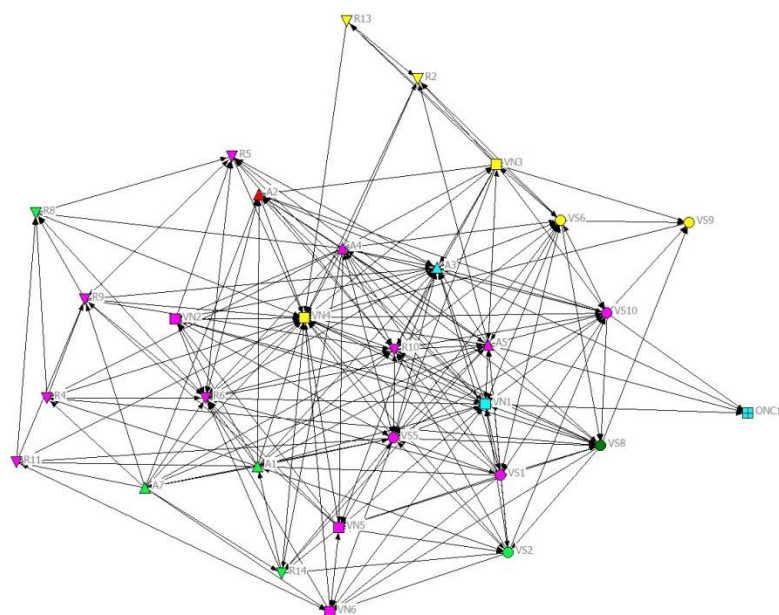


Figure 2. Sociogram for the interaction Advice  
(When you feel unsure about something during your work in practice, who of the following do you ask for advice, help, explanation?)





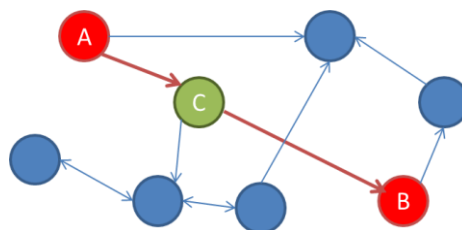
## Key Individuals

There are a number of ways to use Social Network Analysis to assess who are key players in the transfer of information and knowledge within a network such as a veterinary practice. Firstly you can look at the centre of the sociograms above. In addition to this I have used two scores – outdegree and betweenness centrality. These are explained and then reported for your practice below.

**Outdegree** The number of times information (or any consumable) travels from one person to another. In this case, person A has said that they ask person B for information – therefore information travels from B to A, and person B has an outdegree score of one.



**Betweenness Centrality** If you take any two individuals within a network (e.g. individuals A and B in the diagram), then anyone who is on the shortest route for information transfer from A to B (i.e. individual C) is counted as having betweenness centrality. Networks can be ranked with these central people who can act as gatekeepers of knowledge at the top and peripheral individuals lower down.



The following two tables show the top five or three individuals for betweenness centrality and outdegree scores.

Table 3. Top three individuals for the outdegree score for each interaction.

	Information	Advice	Problem Solve	Influence
1	A4	A5	A5	A5
2	VS5	A4	A4	A4
3	A5	VS7	VS7	VN1

Table 4. Top five individuals for the betweenness centrality score for each interaction.

	Information	Advice	Problem Solve	Influence
1	VS5	VS6	VS6	A5
2	A4	VS8	VN4	VS5
3	A5	VS1	VS5	VN5
4	VS1	VN4	A3	A3
5	VN3	A3	VN1	A4

As can be seen from the sociograms, the outdegree scores and the betweenness centrality scores, VS5, A3, A4 and A5 are the four individuals most involved in information and knowledge transfer. These are important people in the running of the practice either providing direct advice or help, or by being a gatekeeper to information from others. These individuals should be highly valued, but care must be taken that they are not overworked which may lead to stress and dissatisfaction.

### **Interprofessional Interactions**

One aspect of working and learning in veterinary teams is that of interprofessional working and learning. This considers how members from the five different professional groups in your practice (veterinary surgeons [code VS], veterinary nurses [VN], administration [A], receptionists [R] and other non-clinical staff [ONC]) interact together. This is considered in two ways below, the density of interactions between the professions and reciprocity.

#### **Density of Interactions**

The following table displays the density (between 0-1) of interactions separated according to professions. The diagonal line (highlighted in blue) shows intraprofessional relations – interactions between members of the same profession. As there is only one individual identified as 'other – non clinical', there can be no intraprofessional score for this profession and comparisons are avoided.

The other scores in the table indicate interprofessional relations, for example between veterinary surgeons and veterinary nurses. The column represents the receiver – the person that answered the questionnaire, saying that they received information or asked for advice. The row represents the profession of the sender of the information or advice. In this way the density for information from veterinary surgeons to veterinary nurses, VS-VN, (0.817) is different from the density for information from veterinary nurses to veterinary surgeons, VN-VS, (0.450).

Table 5. Density of interactions according to profession. VS – veterinary surgeon, VN – veterinary nurse, A – Administration, R – reception, OC – Other Clinical, ONC – Other non-clinical. Diagonal blue squares represent intraprofessional interactions other interactions are interprofessional.

		VS	VN	A	R	ONC
Information	VS	0.533	0.817	0.586	0.327	0.500
	VN	0.450	0.767	0.500	0.378	0.667
	A	0.457	0.762	0.667	0.476	1.000
	R	0.293	0.589	0.419	0.281	0.333
	ONC	0.200	0.333	0.429	0.133	----
Advice	VS	0.422	0.567	0.443	0.267	0.000
	VN	0.333	0.400	0.262	0.300	0.167
	A	0.271	0.381	0.500	0.419	0.714
	R	0.133	0.078	0.086	0.148	0.000
	ONC	0.100	0.167	0.143	0.000	----
Problem Solve	VS	0.411	0.517	0.300	0.100	0.100
	VN	0.250	0.500	0.190	0.156	0.167
	A	0.200	0.405	0.381	0.295	0.286
	R	0.053	0.211	0.114	0.143	0.000
	ONC	0.000	0.000	0.000	0.000	----
Influence	VS	0.422	0.383	0.300	0.100	0.100
	VN	0.217	0.300	0.357	0.200	0.167
	A	0.229	0.214	0.524	0.352	0.429
	R	0.013	0.044	0.190	0.052	0.133
	ONC	0.000	0.000	0.143	0.000	----

When considering each profession, it is the column that should be viewed – as this represents the responses from that profession, e.g. who they seek information from. For the veterinary surgeons, it is clear for each interaction that the connections are primarily intraprofessional – with other veterinary surgeons. However it can be seen that the information seeking interaction is also quite interprofessional. The ‘higher order’ interactions like problem solving are more clearly intraprofessional. It could be considered that gains could be made through greater interaction with members of other professions. Admin interactions follow a similar pattern to veterinary surgeons, being frequently intraprofessional however also interprofessional, especially for the information interaction. For veterinary nurses, there are more interactions with veterinary surgeons than with other veterinary nurses. There is also a similar density of interactions with administration/office individuals as with other veterinary nurses. Interestingly receptionists tend to be more interprofessional in all four of the interactions than intraprofessional. It could be suggested that the reception team could learn more from each other’s professional experiences.

## Reciprocity

Reciprocity considers if an individual (A) nominates another (B), does that individual (B) also nominate the first individual (A). This is represented by double headed arrows in the sociograms. Interactions can therefore be null, unidirectional (either  $A < B$  or  $A > B$ ) or reciprocated ( $A < > B$ ). If the network is hierarchical, reciprocity will be low. Individuals lower in the hierarchy will seek information or advice from their superiors, but this will not be reciprocated. A network can also be horizontal whereby individuals often reciprocate interactions across traditional boundaries such as professions.

Table 6. Reciprocity. VS – veterinary surgeon, VN – veterinary nurse, A – Administration, R – reception, OC – Other Clinical, ONC – Other non-clinical. Diagonal blue squares represent intraprofessional interactions other interactions are interprofessional. Missing individuals removed.

		VS	VN	A	R	ONC
Information	VS	0.650	0.694	0.833	0.639	0.250
	VN	0.926	0.533	0.810	0.588	0.500
	A	0.862	0.586	0.923	0.636	0.500
	R	0.793	0.571	0.966	0.444	0.500
	ONC	0.500	1.000	1.000	0.500	---
Advice	VS	0.750	0.750	0.583	0.370	0.000
	VN	0.900	0.333	0.546	0.074	0.000
	A	0.778	0.375	0.267	0.146	0.200
	R	0.714	0.333	1.000	0.177	0.000
	ONC	0.000	0.000	1.000	0.000	---
Problem Solve	VS	0.529	0.478	0.588	0.333	0.000
	VN	0.733	0.364	0.375	0.143	0.000
	A	0.769	0.188	0.250	0.259	0.000
	R	0.800	0.182	0.875	0.313	0.000
	ONC	0.000	0.000	0.000	0.000	---
Influence	VS	0.529	0.471	0.533	0.000	0.000
	VN	0.615	0.500	0.333	0.000	0.000
	A	0.533	0.556	0.818	0.333	0.333
	R	0.000	0.000	0.857	0.111	0.000
	ONC	0.000	0.000	1.000	0.000	---

In a hierarchical situation, it would be expected that if any given veterinary nurse asked a veterinary surgeon for advice (or any interaction) the veterinary surgeon would not necessarily reciprocate. However if any given veterinary surgeon asked a veterinary nurse for advice then the veterinary nurse would definitely reciprocate. This is the case for the four interactions. If we consider the problem solving interaction, the VS(sender)-VN(receiver) reciprocity score of 0.478 shows that when a nurse approaches a vet to solve a problem they are having, 47.8% of those vets also seek the same nurse to problem solve. This is much lower than the VN(sender)-VS(receiver) reciprocity score (0.733). Which shows that if a vet approaches a nurse to solve a problem, then 73.3% of those nurses also seek that vet for problem solving behaviours.

Similar results are seen for the VS-A/A-VS interactions advice and problem solving and all of the VS-R/R-VS interactions.

When considering veterinary nurses and administration individuals, the results imply a dominance of the administration group for information, advice and problem solving, but a dominance of the veterinary nurses for influencing behaviour. Between administration and reception the four interactions suggest a dominance of the administration team.

It is important to remember that hierarchies do not necessarily imply poor working, and are common in situations with a mix of professions such as veterinary practices, hospitals, the military and restaurant kitchens. However they do suggest a lack of reciprocation and it should be born in mind that useful information or knowledge can potentially be gained from anyone. With the increasing responsibilities of Registered Veterinary Nurses it is anticipated that in many situations the traditional hierarchy between vets and nurses will begin to erode.

### **Branches**

It is commonly seen in social network analysis that individuals who have regular face to face contact together are more likely to have interactions with each other than with people they rarely see. The sociograms are therefore colour coded to explore the influence of the branch each individual works in. From all four interactions it is possible to see the peripheral location of those individuals from the yellow and to an extent the bright green branches. It could be considered advantageous to encourage collaboration between the branches to enable a more cohesive company through better transfer of information, knowledge and best practice.

### **The Social Interaction**

The social interaction (Who of the following do you meet socially outside work [not including work functions such as Christmas lunch]?) demonstrated that on average people indicated four to five people with whom they interacted socially outside of work. Research has shown that having colleagues as friends can help with job satisfaction and ultimately work outcomes. Therefore while it is clear that friendships cannot be artificially created, providing opportunities to enable friendships to be formed is advisable.

### **Contact Details**

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### **Thank You**

I would like to reiterate my thanks to the Cedar Vets team for taking part in my PhD project. I really appreciate the help that you have all given me.

I hope that you find these results interesting and useful. If you would like to discuss any of the results (while maintaining the anonymity of the participants), please feel free to contact me.

*This project has received approval from the RVC's Ethics and Welfare Committee, reference number URN 2013 0086H.*

# Case Study Report

For Cedar Vets

By Tierney Kinnison, PhD Student  
The Royal Veterinary College &  
The Institute of Education

April 2015

## [Table of Contents]

### Introduction

This report details the findings of the Case Study conducted at Cedar Vets over the course of three weeks between September and October 2014. It includes a detailed introduction to Cedar Vets (which I anticipate will be directly included in the thesis) followed by a description of the methods and an executive summary of the results. A 'case study' is a qualitative research methodology and is therefore quite different from the quantitative, numbers based, Social Network Analysis that I previously conducted and reported to you. Qualitative research is quite new to some vets, nurses and other members of the scientific community; hopefully you will find the methodology and results interesting. It is incredibly challenging to summarise a full case study. Therefore I have provided this short executive summary and I will also share with you draft versions of the case study implication chapters of the thesis for your consideration.

Within my thesis I will try to maintain anonymity through the use of codes and pseudonyms rather than true names. In this report however I use the branches' real names to aid your critique of the results. I have largely avoided the investigation of individuals as the purpose of this analysis is to consider the team and the way that the team functions together. Individuals will be mentioned in the thesis and they will also be anonymised. I will not compare your practice to the other practice I visited in this report; the report is purely regarding your data.

I suggest that the executive summary is shared with all the members of the practice team. However I ask that you do not share it further than this. I will be publishing a selection of the results from this report in my PhD thesis and potentially in related journal articles. These will contain an element of comparison between the two practices in which I conducted case studies. The other practice was chosen because it is significantly different from Cedar Vets in terms of location, size and species treated. Both practices were chosen due to their good Social Network results as well as the potential I saw in them to be an accommodating and interesting case study site. I will share my completed thesis with you in due course.

If you have any questions, please see the 'Contact Details' section at the end of the report for ways to contact me.

*Tierney*

### **Cedar Vets**

Within this report the branches are referred to by their real names. Cedar Vets and the branches will be referred to by pseudonyms in my thesis and any publications. The true names have been kept here to assist your reflection on the study results.

Cedar Vets is an urban veterinary group in England. It comprises of five branches; four within close proximity of each other (maximum 5.9 miles) and one slightly more separated (18.4 miles from the furthest other branch) and known as a sister practice. This is depicted in the schema below.

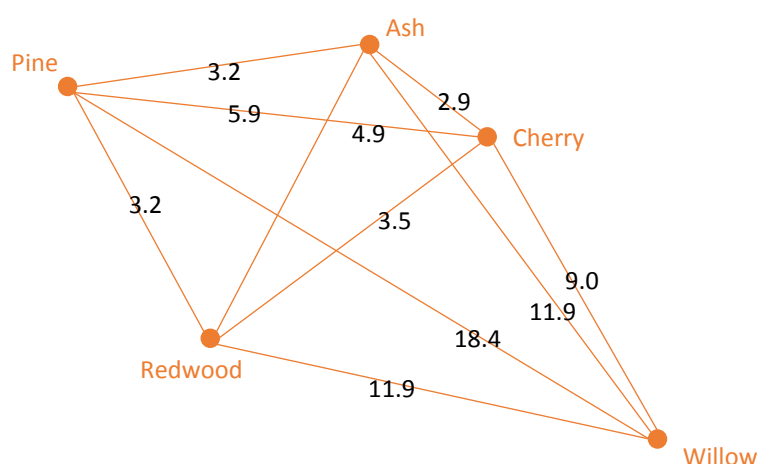


Figure1 Geographical representation of the five branches that make up Cedar Vets.  
Black numbers indicate distance in miles

Upon initial contact in November 2013, the practice identified 39 individuals as belonging to Cedar Vets. Thirty, 76.9%, responded to the SNA questionnaire as detailed in the previous report. Five individuals; two vets, a veterinary nurse, a receptionist and a Branch Manager, had left the practice prior to the observations which took place in September-October 2014, 10 months after my initial visit to distribute the questionnaires. Two new receptionists, a Branch Manager (RVN) and a veterinary surgeon had joined the team. Due to timings and locations, not all members of the team were observed during my three weeks. In total 37 individuals were involved in the Case Study observations to a greater or lesser extent.

Many staff members rotate around the four centralised branches, but few, if any from these branches also work at the sister site, The Willow. While some vets, veterinary nurses and receptionists have identifiable 'base' branches, others appear to work just as often in several branches.

Redwood and Ash are the biggest branches; however they are quite distinct in the way they are viewed by the staff and had noticeably different atmospheres to me as an observer. Redwood was the first branch of the practice, set up in the late 1970s by the current Senior Partner. I only saw the Senior Partner once during my weeks at the practice, and he now does limited day to day veterinary work while still maintaining his position. He is viewed as the big boss and by some younger or newer staff may be considered unapproachable, despite his friendly demeanour.

In spite of its early beginnings, Redwood maintains a modern feel and exudes a sense of professionalism and welcome. It has grown vastly from its first days whereby the Senior Partner was joined only by his wife as receptionist, to the present day whereby it houses several vets, veterinary nurses, receptionists, a Branch Manager and two Practice Managers throughout a week. The waiting area is spacious with separate seats for dog and cat owners, noticeboards for current issues (e.g. fireworks around Bonfire Night), shelving



units for toys and food sales as well as the large reception desk. The floor plan can be seen below. The blue areas represent areas where clients can go while the purple areas are 'out back', and are therefore inaccessible to clients. There is however an open aspect to the front /back divide with the door to the lab/reception being open and the kitchen/store being open onto reception. This was seen by one veterinary nurse as being advantageous as it allows veterinary nurses to keep an ear open for situations arising in reception.

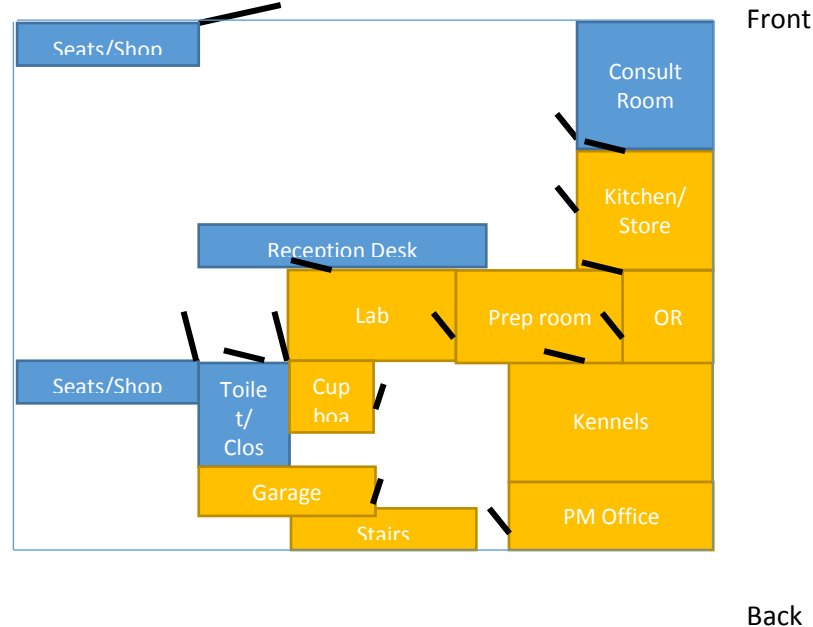


Figure 2 Floor plan of Redwood. Blue areas are for clients while the orange areas are for staff

Although the Practice Manager and HR Manager's office is right at the back of the building, Redwood's Branch Manager works at the reception desk and so is visible to the staff and clients. She has a pivotal role within the branch and Cedar Vets as a whole and is engaging and impressive in her work. A veterinary surgeon lives in a flat above Redwood. This allows him some freedom to come and go while still being accessible to the team if required. Considering it the main branch, I chose Redwood for my first day of observations. Over the observation time I was given free rein to explore the branch and to observe and talk to who I wanted. Throughout my weeks with Cedar Vets I felt very at home at Redwood. Ash, it turns out, is just as busy, if not more so than Redwood. In contrast to Redwood, Ash, for the staff at least, has a more cramped feel. The reception desk can only just fit two receptionists and several people mentioned feeling like they were always on top of each other. While geographically close to three other branches, and sharing many of the same vets, veterinary nurses and receptionists, it is thought of as being different to the others, a somewhat cliquey branch. This on the other hand, when viewed by members of the Ash team gives it a close-knit family vibe, full of people with the same interests. The Ash floor plan is shown in Figure 3. The door to the Prep Room from the storage space under some stairs separates the back from the front making it difficult for the veterinary nurses to keep up with what is happening out the front, without frequent messengers.

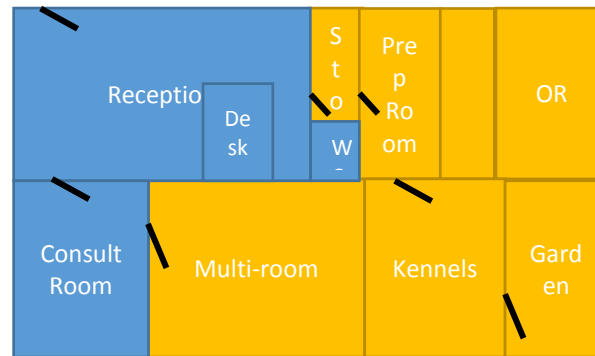


Figure 3 Ash floor plan.

Cherry and Pine are much smaller branches. They do not always have a vet or a veterinary nurse on site and have closing times during the middle of the day. Cherry is the newest of the branches and was developed from an existing pet shop. It is just 2.9 miles from Ash. While Ash has a constant buzz and fully booked consulting periods, Cherry is a quiet surgery, almost silent at times. This does however enable the staff to have excellent client relations and to offer a personalised friendly service to those that come through its doors. It is well loved by the people that work there and appreciated by its limited clientele. It may however help the slightly chaotic Ash if some clients could be convinced to go to Cherry instead! Space in general is a challenge, especially for meetings. While I was there, a Rep meeting was held in Ash's consult room and a Branch Managers' meeting was held in Redwood's prep room; much to the dismay of the Head Nurse.

The Willow is a separate entity, it maintains its unique name and is referred to as a sister site on the Cedar Vets website. Its head vet is however one of the Cedar Vets Partners and part of the Senior Management Team. Being the most inner city, the parking at The Willows is the worst of all the branches, but it also maintains a dedicated clientele and is reluctant to change its name for fear of losing or confusing them.

Cedar Vets promotes a sense of team to their clients via their website. The page 'Our Team' can be seen below (Figure 4). It links to pictures and descriptions of members from each of the main professions and occupations at Cedar Vets, including the odd cat mascot.

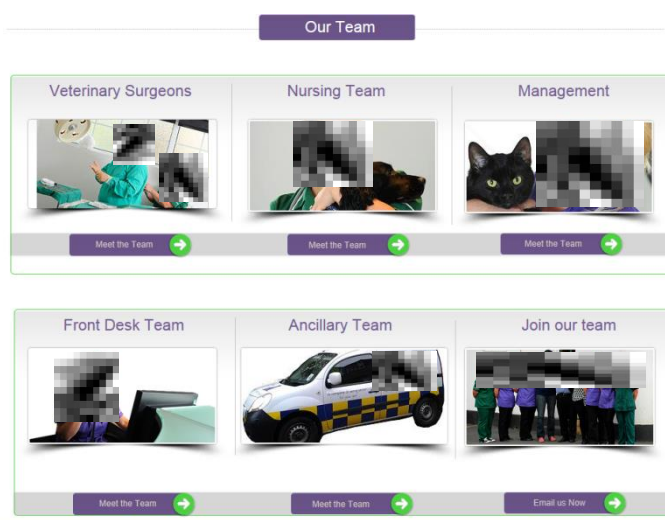


Figure 4 Screenshot of the Our Team webpage demonstrating the inclusive nature to all members of staff as part of the team

The website states that:

“We employ qualified veterinary nurses who are registered with the RCVS. This ensures the highest standard of care for patients and offers an assurance to clients, the public and employers about standards of behaviour and professional skills. Our RVNs (Registered Veterinary Nurses) have a wealth of experience ... and work closely with the veterinary surgeons .... In the hospital environment, our RVNs’ extensive knowledge of animal welfare ensures that patients’ needs are prioritised.”

Nurse clinics are also promoted and include weight clinics, senior pet clinics and puppy & kitten consults. The website claims “As part of our mission to deliver the highest level of care for your companion, we offer FREE nursing clinics in a variety of areas, with our Qualified Veterinary Nurse Team.”

Redwood is the only branch where the veterinary nurses are also promoted through a poster explaining these details, as can be seen below in Figure 5.

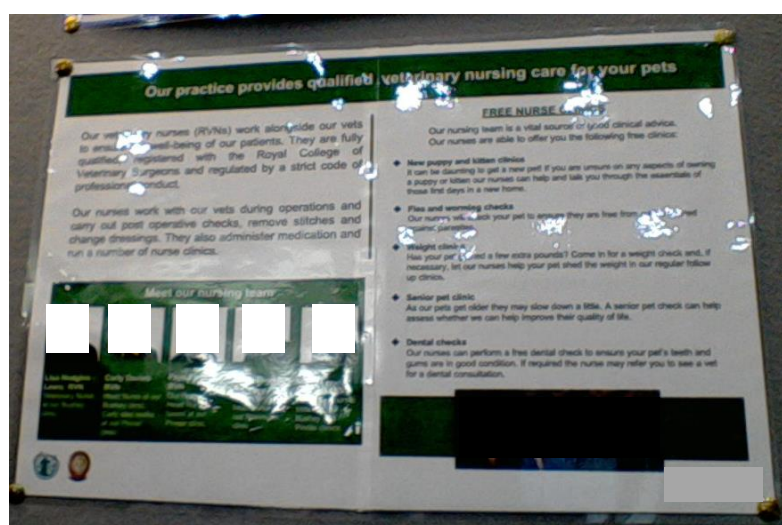


Figure 5 Poster at Redwood describing the work of the qualified veterinary nurses

Further to this recognition of veterinary nurses, the website states:

“We believe that not just our vets and nurses, but all our staff play an important part in ensuring the well-being of your pet .... Investors in People is the national quality standard which monitors how we develop and support our staff. ... we have been accredited by IIP for a number of years”

Cedar Vets are also members of the community and for example “work closely with the [local] branch of the RSPCA.” RSPCA members repeatedly visited the branches during my visits in order to get cats neutered and even to drop off a ferret for fostering.

Cedar Vets also promote their work through Facebook. They Joined Facebook in February 2013 and at the time of my website analysis (October 2014) had an average user rating 4.9/5 from 36 ratings and 446 total page likes. Nine of 16 comments were regarding the team and were unanimously positive. For example one client wrote “Vets, nurses and front of house staff are all brilliant and to anyone out there looking for a vet you won't ever do better than going to Cedar Vets”. Their own Facebook page may present a biased view of the practice; however Google+ reviews also demonstrate largely positive feedback. Ash branch had an average review of 4.3 from 10 clients and Redwood an average review of 5.0 from four clients. Positive comments again depicted the excellent team:

“[Vet] and the team of vets at Cedar Vets are first class. All the receptionists are so very very welcoming and friendly and very knowledgeable. ... [Vet] operated on [Pet] and was always to hand to ask advice, and he is a superb mentor to his staff I

am sure. .... All the staff are superb and are a credit to the profession of veterinary practice.”

Two negative comments were posted, which both relate to the cost of treatment at Cedar Vets and to the staff trying to “guilt” clients into buying more products for their pets. Cedar Vets have replied to these comments, stating their commitment to high quality treatment and offering the writers the opportunity to discuss matters in person.

### **Methodology**

Each week of the case study is described below. Within the executive analysis section of the report however all results are presented together. This is a form of triangulation, whereby information from different sources is taken together to improve validity.

#### **Week One - General Observations**

The first week consisted of general field observations. I began the first day of the first week within the main branch of the practice and was greeted by my main point of contact. From that point I was allowed to roam the practice buildings as required. The observations were based on locations. As a starting point at each new branch I would position myself in the reception of the practice which allowed the observation of the receptionists and veterinary surgeons primarily. This was the best location for interprofessional interactions during consulting periods. Approximately mid-morning, depending on the availability of veterinary surgeons, operations would begin. At these times it was most beneficial for observations to take place in the prep room and the operating theatres to facilitate recording veterinary surgeon and veterinary nurse interactions.

Through the use of a small laptop/tablet I was able to record field notes throughout the day. In total, 57.75 hours of field observations were conducted during week one.

#### **Week Two – Shadowing**

Six individuals were chosen as focus individuals. They included two veterinary surgeons, two veterinary nurses and two administrators. They were chosen based on their availability and SNA results. All six agreed to take part.

Each of the six chosen individuals were shadowed for one day, consisting of their whole shift. Field notes were again taken, this time with distinct attention on actions by the focus individual and anyone they were interacting with. In total 41.25 hours of shadowing were conducted.

The advantage of shadowing is that it provides continuity of observations of teamwork, including patient care. A potential disadvantage of shadowing is that it identifies the individual under observation, simply by the fact that I followed them like a shadow. This makes maintaining the anonymity of the focus individuals to the rest of their team almost impossible. This was explained to the chosen individuals in the primary contact with them and in their consent forms. It did not appear to be a problem at all for any of them. While I maintained silence and did not identify my subject, even when it was apparent, the subjects themselves happily told each other that they were the focus of my observations on that day.

Observations can be limited in their ability to understand the thoughts and feelings of the participants, or individual’s previous experiences. A final week of interviews was therefore included.

#### **Week Three - Interviews**

Semi-structured interviews were conducted with all 6 focus individuals. The interviews lasted between approximately 22 minutes and 43 minutes (average 34 minutes). All interviews were audio recorded using a Dictaphone and were transcribed by myself. The

questions were adapted based upon the profession of the participant and the observations I had made of them in the previous weeks. For example I asked about specific instances of interprofessional working that I had observed. The base of the interview schedule can be seen below:

1. How do you perceive the veterinary team in which you?
  - a. Branches
  - b. Intraprofessional team
  - c. Interprofessional team
  - d. Ask for examples of good interprofessional working. Can they identify role models of this, what makes these people leaders in this area?
  - e. Are there common conflicts within interprofessional work or barriers that have to be overcome?
2. Show the participant the results from the social network analysis questionnaire, explanation of codes
  - a. Do you think these sociograms represent what we've been talking about? Why/not?
  - b. Could you try and identify yourself in this sociogram?
  - c. Identify them - demonstrate if they are positioned within the center or the periphery of the network. Ask them how they feel about that result, and if they think their position has changed over the years
3. Changing times of practices, professions/occupations
  - a. Describe historical change
  - b. Have you noticed a change in your work due to the professionalisation of veterinary nurses?
  - c. Have you noticed a change in your work due to the rise of administration individuals
  - d. Are there drawbacks to the professionalisation of these groups?
  - e. Do you see the veterinary team changing further in the future?
4. Describe any interactions with individuals outside of your practice with regard to your work

The interviews were analysed using thematic analysis (Braun & Clarke, 2006).

#### Artefacts

Throughout the case study weeks and through follow up contact artefacts were collected. These have included photographs of posters within the practices, minutes of meetings, official guidebooks, hierarchy charts, website print screens and floorplans. Subsequent contact with the focus individuals requested that they completed a personality test and provided me with a selection of typical emails. The personality test used was based on the Big Five; extraversion, conscientiousness, neuroticism, agreeableness and openness and can be found here: <http://personality-testing.info/tests/BIG5.php>.

## **Executive Summary of Findings**

### **Interprofessional Working and Learning: Structure**

#### *Hierarchical Organisation of Work*

A hierarchical structure was promoted at Cedar Vets through the use of a flow chart diagram. This diagram clearly identifies the line managers of each individual which should make asking for help easier. When considered top down rather than bottom up, this hierarchy also demonstrates how information is cascaded down from the Partners and Senior Management Team to the Branch Managers and then to the receptionists and veterinary nurses. A hierarchical structure based on profession was also seen in the Social Network Analysis report. While a hierarchy can be beneficial for management purposes, it is important that individuals consider help and advice from those in other professions, traditionally below theirs, where experience and knowledge is apparent.

#### *Spatial and Temporal Dimension of Interprofessional Working and Learning*

The main focus of my study was veterinary surgeon and veterinary nurse interprofessional working and learning. It became evident that the prime time when these two professions were working together was during operations. During the rest of the day the nurses are opportunistic in their interactions with veterinary surgeons, catching them whenever they can. A challenge to interprofessional working therefore is the time that veterinary surgeons spend away from the practice, either during lunch or travelling to other branches and the significant amount of (necessary) time spend in consultations. Veterinary nurses and receptionists are in constant contact throughout the day. Veterinary surgeons and receptionists are in frequent contact during consulting periods. Administrators are in contact with most people most days.

#### *Interprofessional Working and Learning in Formal Infrastructure*

Initiatives have been set up which involve an element of interprofessional working and learning. An example is the inclusion of the Practice Manager and Head Nurse into the senior management team. Bringing individuals with different perspectives into management may be challenging but is beneficial when the different voices are listened to; which they appear to be at Cedar Vets.

### **Interprofessional Working and Learning: Facilitation**

#### *Trust and Value*

During all four interviews with veterinary surgeons and nurses, the notion that veterinary surgeons trust veterinary nurses to do their job and to highlight anything of concern to a vet was mentioned. There was a palpable feeling in the interviews and observations of the concept of trust. This trust however must be earned and individuals need to learn to trust others and to delegate appropriately.

As indicated above, the management team value the opinion of the Practice/HR Managers and the Head Nurse. This feeling extends beyond the confines of a meeting to the day to day work within the branches. Salient examples included a vet and several nurses discussing and carrying out a ferret dental and vets appreciating the excellent reports nurses give them regarding inpatients. Veterinary nurses' full skill sets were used as evidenced by their undertaking of dental scale and polishes for example; though both nurses interviewed would like to do more minor surgery. Receptionists were valued as the front line, dealing with any difficult clients.

Having all the professional groups was seen as important in primarily allowing the vets to vet and the nurses to nurse and the administration/receptionists to look after the clients.

Overall there was a sense of enjoyment of working within the Cedar Vets family. There was an overarching team ethos while individuals were often seen to be approachable and supportive.

### Interprofessional Working and Learning: Challenges

#### *Professional Structure*

The spatial and temporal aspects of interprofessional working, in terms of absent or busy vets, has already been mentioned as a potential challenge. Differences between the branches in the way they work were also seen as challenges to working as a successful team. Common protocols across branches, and between veterinary surgeons, would assist interprofessional working. The busy Bushy branch was especially commented upon as an area where mistakes can occur. Certain identified individuals, who have now left Cedar Vets, were also mentioned as previously having destructive influences on team work.

#### *Professional Motivation*

Different perspectives and motivations can be a blessing, as identified in the management meetings. However they can also be a challenge to working with members of other professions. It can be hypothesised that different professional groups have different motivations within the overall aim of improving the health of patients. Very generally speaking, veterinary surgeons focus primarily on curing the patient (diagnosis/treatment options), veterinary nurses on caring for the patient (welfare), receptionists on the service to the client and administrators on the business and employee aspects of practice. A prime example of this is veterinary nurses feeling the need to prompt veterinary surgeons to prescribe pain relief medication. This was identified in both interviews and observations. Differing motivations can lead to a lack of understanding of each other's actions and ultimately dissatisfaction or concern if one profession's views on treatment are not undertaken.

#### *Professional Dilemmas - Errors*

Few errors were observed during the three weeks. This is testimony to the improvements in communication and the act of seeking everyone's opinions which have occurred within the practice. Some errors or areas of conflict were however mentioned. For example a letter was lost, clients were booked in at the wrong times, and vets were called/not called when offsite in an inappropriate manner. Errors occur in all veterinary practices due to individuals, but more often, due to inherent problems in the system. Interviews with clinical staff demonstrated challenges with working with receptionists, primarily through their inability to work adaptively to different situations. However, it is suggested that common working across branches and between veterinary surgeons would assist receptionists in their work and reduce mistakes. Training opportunities could increase understanding of certain consultations which would help with booking appointments.

### **Contact Details**

Miss Tierney Kinnison

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**Thank You**

To all at Cedar Vets I would like to say a massive thank you for allowing me to conduct my case study observations with you in September/October 2014. Special thanks to my six focus individuals and to those of you who supplied me with supplementary material after my visit. I truly enjoyed my three weeks with you and appreciate so much the fact that you all welcomed me into the practice and looked after me with tea and chats.

I hope that you find these results interesting and useful. If you would like to discuss any of the results (while maintaining the anonymity of the participants), please feel free to contact me.

This project has received approval from the RVC's Ethics and Welfare Committee, reference number URN 2013 0086H.



## Appendix 5

Missing data and statistics summary of the three main SNA papers utilised in this thesis

Table 19. Demonstrating response rates and data analysis from the three key papers cited in this thesis

Paper	Response Rate(s)	Further Information	Analysis
Creswick and Westbrook (2010)	45/47 (95.7%)	The two missing individuals were a junior doctor and a senior Registered nurse	<ul style="list-style-type: none"> <li>• Visual Analysis – Sociograms</li> <li>• Whole network Analysis               <ul style="list-style-type: none"> <li>- Geodesic distance</li> <li>- Density</li> <li>- Average strength of ties (inter and intraprofession)</li> <li>- Reciprocity</li> </ul> </li> <li>• Individual Measures               <ul style="list-style-type: none"> <li>- In-degree</li> <li>- Degree centrality</li> <li>- Out-degree</li> <li>- Betweenness centrality</li> </ul> </li> </ul>
Cott (1997)	28/29 (96.6%) 21/32 (65.6%) 23/32 (71.9%)	These three units were used. Two units with low response rates (18% and 27%) were not used	Blockmodelling Percentages
Wagter et al. (2012)	83/108 (76.9%)	7 doctors (100%) 9 residents (100%) 61 nurses (75%) 6 others (55%)	Mokken scale analysis to create a cumulative scale Sociograms • Measures <ul style="list-style-type: none"> <li>- Density</li> <li>- Centrality</li> <li>- Reciprocity</li> <li>- Average tie strength</li> </ul>

## Appendix 6

### Coding of observational SNA

The focus individual's questionnaire allowed comparison with observations of the following interactions: focus individual receives information from, focus individual receives advice from, focus individual problem solves with. The alter's questionnaire allowed comparison with observations of the following interactions: focus individual gives information to, focus individual gives advice to, problem solve with the focus individual. The results were therefore coded according to Table 20.

Table 20. Codes for observational SNA

<b>SNA Description</b>	<b>Relates to Focus Individual's Observed Behaviour</b>	<b>Code</b>
Focus individual identified they do have this interaction with the alter	Information from Advice from Problem solving	Yes
Focus individual identified they do not have this interaction with the alter	Information from Advice from Problem solving	No
Alter identified they do have this interaction with the focus individual	Information to Advice to Problem solving	Agree
Alter identified they do not have this interaction with the focus individual	Information to Advice to Problem solving	Disagree
Alter did not return their SNA questionnaire	N/A	Non-respondent
Alter was not employed at the time of the SNA questionnaire	N/A	New staff

## Appendix 7

Case study information sheet for all practice staff members and consent form for focus individuals specifically.

Dear [Name]

My name is Tierney and I am a PhD student at the Royal Veterinary College and the Institute of Education. You may remember me from when I visited [Practice] to carry out a Social Network Analysis study back in [Date]

This involved each of you completing a questionnaire regarding your interactions with all the other members of your practice team. Your participation in this part of my PhD was vital for the consideration of veterinary team working. I would like to say thank you once again for all of your help during the questionnaire part of my study....



## Thank You!!

### What's next?.....

Over the coming months I am visiting two of the practices who I surveyed to expand upon the results. I have chosen [Practice] and have received permission from [name] to conduct observations and interviews at the practice. I anticipate that I will be here for a total of three separate weeks [Dates]. Here's my proposed schedule:

- Week 1: General observations of the team's working behaviour
- Week 2: Shadowing of a select few individuals to see what type of work people do, how and with whom
- Week 3: Interviews with a few individuals and more general observations

It is really important that you **try and ignore me** during these observations and act as **normally as possible!!**

### Please note...

I may be observing at all times when I am at the practice. Even if I am in the staff room, eating my lunch, although I will be on my break, if something interesting happens or is said to me, then it may end up as part of my data! Please be confident that **I am not here to try and trip you up** or make you look bad to your colleagues/bosses. In fact, it is the reverse. I have chosen this practice to observe because the results from the questionnaire part of my study demonstrated that you work well as a team. I simply want to explore this further to find out what makes you a successful team.

### Anonymity, where possible

You will not be video or audio recorded during the general observations or the shadowing. However, I will be taking notes on my observations and anything you say may be quoted anonymously in my reports. Please be sure that I will do my very best to keep all aspects of this work anonymous; in reports back to the practice, in my thesis and in journal publications. It is however likely that a few of you may be identifiable to others in your

practice by the simple fact that you will all know who I have observed or interviewed. I will therefore be asking specific permission to shadow and interview individuals.

### **Opting Out**

This letter provides advance notice of the general observations. If you would like to be excluded from this part of my research please let me know as soon as possible. Participation is voluntary and you may opt out at any time. However, I hope that you would all enjoy the chance to be part of novel veterinary research, which aims to provide assistance in creating even better functioning teams!

### **Thank you, again!**

Your assistance is again very much appreciated. Without the participation of each of you I would not be able to complete my PhD research. Thank you.

### **Further Details**

This project has received approval from the RVC's Ethics and Welfare Committee, reference number URN 2013 0086H.

Please contact me with any questions regarding the project:

Miss T. Kinnison, The LIVE Centre, Hawkshead Lane, North Mymms, Hatfield, Hertfordshire, AL9 7TA

Tel: .....(Work) ..... (Mobile – for while I'm visiting your practice)

Fax: .....

email: tkinnison@rvc.ac.uk

## Shadowing and Interview Consent Form

This form is important. Please make sure you read it carefully and then complete your details if you consent to take part in the shadowing and interview stages of my PhD research project.

The project is concerned with team-working within veterinary practices in the UK. It is focussed on who individuals work with and how they go about their day to day work. It will not explicitly consider the content of your work, purely the context. The project aims to ultimately guide recommendations for undergraduate education within colleges and universities to improve veterinary team-work.

The shadowing part of the research will involve me following you for a day and making notes on your interactions with other team members. The subsequent interview will last approximately one hour and will take place during my final visit. It will consider the veterinary practice team.

In agreeing to take part in this research you can be confident that:

- Any data that you provide through taking part in this research will be held in accordance with the UK Data Protection Act (1998) and EU Directive 95/46/EC.
- All data will be anonymised and any reference to you as an individual will be removed within reports and publications (e.g. thesis/ journal articles), unless express permission has been given by you. You should therefore be anonymous to those outside your veterinary practice.
- However you are likely to be identifiable to your colleagues. They will have seen me shadowing you, and I may need to confirm permission with the Partners/Practice Managers for taking your time for the interview.
- The data will be stored securely and in confidence i.e. in a secure folder on a network drive of a university server. The folder will be set up specifically for the project and access will be restricted to me and my PhD supervisors.
- Your data will only be used for the stated research purposes.
- You may withdraw from the study at any time.
- Ethics approval has been granted for this project, RVC Ref: URN 2013 0086H. Best ethical practice will be followed in accordance with the British Sociological Association (BSA) guidelines.

**I agree to my data being used within the PhD research. I understand that this information will be stored securely and in confidence, but that I may also be quoted anonymously in presentations and papers relating to this project.**

Name (please print) \_\_\_\_\_ Signature: \_\_\_\_\_

Organisation: \_\_\_\_\_ Date: \_\_\_\_\_

**Thank You for your participation in my PhD research, Tierney Kinnison**

Contact details: tkinnison@rvc.ac.uk/ 01707 666990

## Appendix 8

This appendix demonstrates a data trail from the observations and interviews to the interpretations I have made in my thesis (utilising Activity Theory (see Figure 9)) and Figure 26 which summarises the main themes. The three sections relate to three data types: 1) Field notes 2) Interview Transcript 3) Diaries.

### 1. Field notes

The following field notes are from my second day at Cedar Vets. The pseudonyms of the focus individuals have been used, while other individuals are referred to as a code (profession and number).

After a couple of hours on my first day of observing, I realised it would be helpful in terms of visualising the data and in sustaining engagement with the working process if I were to highlight the types of interactions occurring. Therefore my initial highlighting of interprofessional (blue highlighting), intraprofessional (green highlighting) and social (yellow highlighting) interactions, which was carried out as the interactions happened, has been maintained. This initial, and very general, classification relates back to my consideration of inter- and intraprofessional work in Chapter Two as well as the distinctions made within the SNA analysis (including the identification of the importance of social interactions) (Chapter Four).

In addition, the subsequent annotations of the observations have been included. These themes emerged from the iterative data analysis of observations and interviews as explained in Chapter Six, along with triangulation of SNA data. Passages relating to the overarching theme of structure/facilitators of IPW/L are identified by blue handwritten notes. Sections relating to the challenges to IPW/L theme are highlighted by pink notes. Indication of the Activity System framework utilised in this thesis is also provided (e.g. division of labour, community, instruments, object of activity and rules) where appropriate.

[Practice] Day Two [Branch] [Date 2014]

Interprofessional working/learning

Intraprofessional working/learning

Social Chat

Community- Branch today  
included  
4R  
2VS  
3VN  
2A  
+ discussed  
1R 3VS 1VN

After a relatively full day yesterday I decided to head in for morning surgery on Tuesday. I am aware that there were few instances of vets and nurses working together yesterday, mostly because [VS1] leaves as soon as he has done consults and [George] lives upstairs so disappears straight after his work too. So seeing surgery today should be a good opportunity to watch VS-VN IP working and possibly learning.

Temporal

I arrive at 9.50am and find a parking space around the corner on a much quieter road, I feel much better about leaving my car there. I walk in and [R1] is already here, even after working late last night. She greets me friendly. She is with [R2] who I have not met before.

I set up shop in the reception while [George] finishes consults before ops begin at 10.30am. [George] comes out with one client and asks [R2] to call a referral practice to see if they can fit this client in as soon as possible. [R2] says she will but is busy with a client. [George] asks [R2] if she can do it when she is free as [R1] is tied up. [George] leaves the clients with reception and calls in the next patient.

I go through to the back. The nurses are just finishing with a cat, putting him back and telling me about how the last cat managed to hide itself behind the sink!

Sparks from opposite interaction

[George] comes in and mentions to [Claire] that there is a lab which needs blood tests in the reception.

While [George] is here [Claire] mentions cat with big stomach. [George] takes note of this and says ok we'll have a look into it.

[R2] comes in to ask about the blood test. [Claire] says can bring it in, have you done weight

[R2] comes back to ask about an estimate to [George] who says its all done. [VN1] chips in with what to do to get the estimate printed out. [R2] leaves and [George] and [VN1] talk about receptionists not being able to think outside the box and have to go through tick list of things to go through.

Blame Dol/Ables

[George] jokes about whether I'm observing if vets are patient, saying he noticed the Hawthorne effect and was calmer because he knew I was observing.

The girls joke about [[George]'s] ability to diagnose by not even touching the animals.

W/ Rought-value  
Blame + Dol rules  
Value

The girls have some trouble with the dog but its done while [George] is on the phone, [Claire] checks what drugs it needs and [George] says what its been given. [Claire] checks about more and [George] agrees.

[George] and [VN1] talk about asking for things to get done but they are not done, by the receptionists. She says she's seen it at the other branch and now here too.

[Claire] was worried about one cat and so [George] says shall we have a look at him, they get him out and [Claire] cleans his kennel while [VN1] holds the cat and [George] checks him. [VN1] and



[George] agree he seems better now has had a wee. [R1] comes in to let [George] know the next patient is in, [Claire] catches her to make sure it gets weighed.

Bame

A known client calls asking for [Claire], [R1] comes in to tell [Claire], preceding it with I know you're very busy, [Claire] is cross because there is no reason this client should have been sent specifically to her, but she tells [R1] to let her know she can call back later.

[Claire] asks [George] what is happening with the next patient, he jokes it's a castrate, [Claire] says I know.

Bame

They go back to discussing people nominating them for calls.

Roles  
VN mostly  
territorial

[George] waits while [Claire] grabs drugs and [VN1] sorts the drip. It all happens with no discussions a well running team. [R1] brings the dog in and [Claire] is busy so tells [R1] to give him to [George]. [Claire] asks if [George] is ok to hold him while she gives pre med, he does. Christina pops through and takes tea order. The drip is dripping, [George] notices, asks to the room at large if it is supposed to be and stops it.

[George] says 'I thought I put that on the record', 'yes let's do that' to [Claire]. The nurses explain to [George] how one client can't always give meds, [George] says 'oh well that kind of explains everything'. [George] finds the note was on the record after all, but then [VN1] sees there's no estimate, [George] jokes it was very busy but he had definitely done it and written it on one thing. It not being on the record is seen as weird.

[George] asks when they are going to do his cat, [Claire] asks if he wants to do it, he does.

[Claire] asks if she should get first cat out, [VN1] agrees.

VN  
Value

[Claire] mentions a drug, [George] says I was also considering that, [Claire] says 2mg, [George] agrees. [George] waits while [Claire] holds cat, [VN1] shaves and puts in catheter. They talk about [George]'s cat again, saying not given meds, [George] says ok as bloods ok.

[VN1] and [George] check between each other about more pain relief.

Big relief  
of object &  
unit

[George] waits.

They talk about another case, a member of public wanting them to have a bird picked up, and rspca encourages prop to bring them to vets.

Tom for

[Claire] asks can if a cat go home and asks about further drugs and when the check-up visit should be, [George] jokes 'when am I off'.

[Claire] pops out for a coffee and to ask reception to let the owner know that their cat can go home.

Operators  
Involving  
Doc.

[VN1] is collecting things needed for next patient. [George] is on his phone, then waiting, calmly leaning back on the side.

[Claire] comes back talking about the known client again, they jest about her not in a nasty way, [George] suggests she can come in for appointment, but [Claire] says will call her and pass on what [George] has said, she asks [R1] to give her an email to remind her to call her.

Value

[Claire] and [George] agree to do [George]'s cat first. [Claire] gets him out. They take him through to surgery and gives him anaesthetic, [Claire] checks which lumps he's doing. [Claire] asks if can clean his ears, [George] agrees. They still chat about which lumps to remove. [George] not sure about one, but they look and he decides as both owner and vet that would be better to do it now before gets

Operation  
Dol

old. [VN1] sets up machines, [Claire] trims around his eye, checking how much to do. [VN1] gives more drugs to [George] in case he's a bit light, [George] says he went deep but not now. [George] asks if lump is solid while [Claire] shaving, she says yes. They chat about another case. [VN1] puts clip on toe, but it's not quite right, [Claire] says could put on ear and does so. [Claire] asks [VN1] about dose, she says. They then move it to the tongue where [George] says he wants it, the girls say as long as he promises not to move it too much.

Rob  
Sting

[VN1] asks [Claire] is she's ok in here and they agree she should go out and check tests on the other patients. [George] gets all scrubbed up and ready to go. They wonder where the other vets, [VN1] phones the practice and she's still consulting. [R2] pops in to ask [Claire] if another cat will need meds, she will.

There is some confusion about results, [Claire] works it out and [VN1] says oh yes.

[Claire] helps [George] to get gloved, checks on positioning and if he's had atropine, he is still a bit gurgly, [George] checks with [Claire] if breathing is ok, says yes.

Surgery begins. While starting [George] asks [Claire] where he is tomorrow.

[George] says interesting lump, [Claire] asks how long he's had him, [George] talks to the cat the whole time 😊

[Claire] is ready with sample tube when [George] is done.

[George] says shall we be cowards and use certain thread, [Claire] gets it, due opens hands it to him and he says thank you that's lovely. [Claire] reminds [George] she will turn him over and clean the other side.

[Claire] mentions another case, [George] asks if he had some meds, this reminds [Claire] she needs to do it.

They discuss the weather as [George] sutures up.

[Claire] asks if you are just going to see about scratching, [George] says yes. They agree the cat looks much better. [Claire] turns him over and cleans this side.

[Claire] asks if [George] thinks this lump is the same thing. [George] thinks he's got a few of these and his genetic make up is a bit odd, he asks for fine suture, [Claire] checks, they have it, cool.

Rob  
Sting

[George] asks how he's doing, [Claire] says the monitor has moved on the tongue, that's why the results are different.

[George] says he thinks it's right decision to remove second lump, he does so, [Claire] asks [VN1] to bring in a small histo pot.

They discuss why a client came to [George] they usually go to see [VS2].

[George] wonders why there is a needle on both ends, [Claire] wonders too.

[Claire] asks what [George] wants next, [George] doesn't mind, [Claire] suggests a clean one then another, leaving two others for [Sofia].

Temporary  
Nelson f  
Dol

[Claire] asks if [George] wants post med for him, he does, they joke about [George] forgetting post op care and letting the cat out straight away.

[Claire] shouts out the next patient to [VN1] to get it ready.



Value

[Claire] gets nail clippers to tidy the cat up once [George] has done. [George] says excellent, thank you, good

They talk about TV.

[George] holds the door open and [Claire] takes the cat out, he thanks her.

Outside in prep [R2] is holding a dog and [VN1] is setting up the next dog with a line. [Claire] says she needs to clean theatre then it's ready for the dog.

[R2] asks about operating on your own dog. [George] says its ok as long as routine.

[Claire] sits with the cat as he wakes, [George] checks. [Claire] gets meds for him. There's a drugs chart which she checks.

[VN1] gets OR ready. [Claire] cleans kit. [R2] has helped hold the dog and now leaves.

[George] goes in to OR to check if the dog is ready. This time [VN1] holds and [George] gives anaesthetic leaving [Claire] in the prep room. He steps back and [VN1] sets up. She asks [George] to put some tube back, [George] checks where. He confirms [VN1] will need to put one leg back, she calls the dog might need more as the dog is paddling, he comes into give it.

[VN1] asks me to help by getting a chart from the other room, I pop out and find [Claire] who knows what she would want. [George] leans back again, [VN1] shaves the dog and they chat about the next work function.

[VN1] worries about the size of tube, [George] says he can't gear anything and [VN1] can't smell gas so they think its ok. [George] pops out to get scrubbed up and [VN1] gets gloves etc ready. [VN1] uses the anaesthetic check sheet I got for her. [George] says the dog's stats look ok, [VN1] says this one is too high, and changes some dials. She monitors him closely. [George] starts, [VN1] can predict what he will need next.

[Sofia] arrives and pops her head in to say hi. She goes back to the prep room and talks with [Claire]. [Claire] says what [Sofia] has got next.

[George] checks how we are doing. [VN1] replies. They work quietly side by side, it has a different feel to the last operation, perhaps because it's a different team, perhaps because it's a client's pet not [George]'s cat, perhaps [VN1] is concerned about the anaesthesia.

It is in fact pretty silent until [George] asks [VN1] if she is on duty tonight. She is.

[George] is all done, thanking [VN1] he leaves and [VN1] cleans up the dog. She tells me about a new machine which they are not used to yet. She checks the dog for a chip, and goes ahead and does one. I can help again grabbing a blanket.

Outside [George] is checking on his cat and [Sofia] is preparing for her first op of the morning here. [Claire] has got the little cat all ready.

They discuss the new suggestion of spaying cats at 9mths, [Claire] says but you can't give less than a certain amount of Metacam and [Sofia] says oh right, but then thinks, they are so small so something...the topic is dropped as they move on.

[Sofia] wants a certain medication or something but there isn't any, the nurses say it's too expensive. [Sofia] is disappointed but says 'oh well I can put this on a slide and send it off', [Claire] agrees.

Operating  
D.L.  
R2  
VN1  
Value

R2  
VN1

D.L.

Value

The vets choose between them which case to do.

The nurses are discussing the lab machine.

The vets are discussing a new vet that is joining.

For summary

They now all discuss a problem with a blood sample and diagnosis. It turns out to be the correct sample but not enough of it for all the tests to be run correctly.

Team for

[Claire] says all is ready for [Sofia]. They discuss [VS1] operating yesterday. [Claire] & [Sofia] discuss another case which might come in. [George] talks about [VN2] who is shortly back and has sent a cake to apologise for it being so busy while she was away he wants to do a practical joke on her when she's back but the girls won't let him.

[George] checks which toe they are removing. [Claire] confirms.

[George] goes in to check on [VN1] and [Sofia] says can I grab some suture material please. [Claire] gets it.

[Claire] starts talking about the rota again. [George] goes into check with her.

The focus remains largely on [George]'s cat, who is trying to get his stitches out.

Once [VN1] has finished sorting the OR she fetches the next dog. [George] goes in with her and they lift the dog on the table.

[Sofia] is just finishing up with the cat spay. She has worked mostly on her own with [Claire] coming and going working on other things.

[VN1] asks [Claire] to bring through some more tape. [George] anaesthetises the dog. [Claire] is back with [Sofia] who is finished. [Claire] chips the cat and [Sofia] goes on the computer to write it up.

Value

Next door [George] checks the toe. [Claire] goes in to put the cat back & notices the last dog is dribble, she lets [George] know and he asks her to give him more meds. [Claire] confirms there is no blood on a cat's urine & so it can go home, but they think more tests would be good. [Claire] asks what the estimate was and [George] says it's disappeared, but was about £300. [Claire] notes to do the tests. She then puts her hand on [Sofia]'s slide with urine on it! There is some laughing about that. At least [Sofia] still has enough for the tests!

Key prep - time

Christina pops into the prep room, she asks [George] if he is going to meet a company for lunch. [George] is not sure will make it, Christina is worried there won't be enough of them to get an idea if they would fit with the company. Christina helps hold the dog while he has his extra meds. [George] says he will go to the meeting, though will be late, as he also wants to talk to [VS1].

[Sofia] and [Claire] start on a tail op.

[A1] is here now and has taken oven from [R1]. [A1] comes in after a call to ask how the dog who just had extra meds is. [Claire] says to call back in an hour for pick up time.

Value

I can hear next door [VN1] asking if [George] wants something. he starts out by saying no then instantly says actually that would be a good idea wouldn't it.

[Claire] checks with [Sofia] about extent of clipping.

Value

[George] checks with the nurses he's got the right nail. [Claire] comes out saying he's got a bleeder!



I get to hold a tail to help [Claire]! It just goes to show that an extra pair of hands is always a help in a veterinary practice. While they often ignore me, clearly when they need something, they look around the room, see a free individual and ask them to get something or hold something! I like this as they must at least appreciate my being there a little and will be more accepting to my presence if they like me and I am helpful.

[Sofia] asks about who I'm watching and why, she and [Claire] are both my shadowing individuals. I tell them reasons include sna results, availability, who I knew etc, and reassure am looking for good things.

[Claire] works on clipping nails while [Sofia] operates. This is another example of a VN and VS working alongside each other on the same animal while not exactly doing the same sort of thing. It is quite an interesting example of teamwork, or is it really teamwork?

[Claire] checks which suture [Sofia] needs and gets it.

[George] is done already, he will make the meeting. [Claire] asks if the cost can be under estimate, it was approximately £800 and [George] agrees it can be £600 as it was so quick.

[R2] comes in to say the plumber is off on holiday so won't fix the sink, [Claire] is not impressed.

[George] checks its ok to leave his cat & to leave [VN1] to finish up and heads off to his meeting.

[Sofia] and [Claire] discuss homing stray animals in the surgery and that they would have more if they could.

[A1] comes in, just says 'kitty', [Claire] checks on the cat kitty, the little black neutering, she says she is 'absolutely fine, 3.30'. [A1] goes back to tell the owner.

The nurses discuss more tests they need to do.

The owner for the cat under op calls, [Claire] says call back in an hr.

The list of ops is complete. [Sofia] steals the chair from the OR & gets to work on the computer. She asks what to bill the tail amp as, [Claire] lets her know what [VS1] agreed to and tells her the chip needs to be added. [Claire] returns the cat to his pen. [VN1] calls out to ask [Claire] to help lift the dog, 'two secs', [Sofia] says 'I'll help' and is right there.

[George] gone, [Sofia] on computer, the nurses go about tidying and cleaning up. [Sofia] asks for microchip number, [Claire] passes it over and it's added.

[VN1] discusses the dog she was working on with [Claire], [R2] comes in to ask about the dog as owner on the line, [VN1] says all went well, just waking up, call back.

[Sofia] moves onto calls to owners.

It gets busy with the nurses washing drapes, cleaning instruments, [A1] checking on things and rspca lady coming through. They discuss the blocked bladder cat which can go & she checks on [George]'s cat as it was from rspca. Collects her cat.

A cat is sick (he is the stay or go cat!) and [Claire] says will need to check with [George] what to do.

[Sofia] asks in what format a fix needs to be in, [Claire] & [VN1] give an opinion but don't really know, [Claire] suggests ringing the company.

-Doll Rules  
implicit com?

Motivation  
Conscious  
Accepted

Check out  
approximate  
com

Instant  
Value

VN integrity  
teamwork  
Dx

VN integrity  
removed

Temporary

Prob. Solving

- Rules  
Temporal &  
Spatial

[A1] wants to check dose with [Sofia], but she's on the phone, asks [Claire] but also will wait and check with [Sofia].

The cat can go back in his fresh pen, the nurses say they need to do those tests.

Its 1.30 and [Claire] says its lunch time. I go out to reception, [A1] and [R2] are discussing changing the rota for [R2].

[Sofia] leaves, she needs to be at another branch for consults at 3pm. The nurses join [R2] for lunch in the kitchen, [A1] is still on reception. They all discuss a work function.

[A1] asks [R2] to email [Sofia] as she didn't get chance to ask her about the dose, they decide a trip wire is necessary as they disappear out the door too quickly.

[A1] has a meeting with someone in the consult room, so [R2] is back on front desk.

[VN3] comes in to pick up a dog, [VN2] has driven her but seems to be staying in the car. She gets the dog ([George]'s). She says quick hellos to all the girls and a hi and bye to me!

[R2] asks the room if they know the receptionist at one of the other branches today, they don't.

I've lost track of [A1]?!.. She's still in that meeting.

They discuss making tea!

Lunch seems to be over. [VN1] is still in the kitchen, needs a label for something and asks [R2] to do it, she thought someone else had, but she says she will do it.

[R2] takes the calls from owners double checking an hour later about their pets, both are fine and can go home at the normal time according to [Claire].

C.P.  
Mistake  
+ blame  
mes R

[R2] answers a call from someone wanting a nurses' appointment. She is about to book it in for tomorrow and then thinks to check with the nurse, she says to the client sometimes I say yes and then the nurses say oh no not then, so she goes and checks. Tomorrow is fine and the appointment is made.

[R2] and [VN1] talk about TV. [Claire] joins in.

[A1] is out again, she is trying to arrange for the lady she was talking to to see her again, I believe it is someone to do with [Practice] for training new people. Actually think it's an assessment of some description.

Owners come in to pick up the dog castrate. [R2] deals with them but [VN1] comes out to tell them about the extra anti sickness jab he needed, [VN1] pops back out while [R2] finishes up, [R2] says she won't be long. [VN1] brings out the dog, explaining why he's a bit wet. [VN1] goes through the details of the microchip and the post op care.

[A1] needs to check something with Christina regarding text reminders, [Samantha] is going through them and asks [A1] a question, she calls Christina from her desk, and then reports back to [Samantha]. This is evidently a new system, [A1] apologises for not thinking of something, and says they are still working it all out.

Asking  
nurses  
Use of  
email  
not  
university  
L-bed

Another call for Christina, [A1] sends it straight through.

[Sofia] has emailed back confirming the questioned doses, [R2] reports these to [A1].



[Claire] and [A1] are working over the same computer, they both received an email from someone and are unsure about it by the looks of it.

[A1] takes the right labels as [R2] has already disposed of the wrong ones.

Clients come in for food and toothpaste.

A call comes through regarding safety of having dogs and babies together, [R2] answers and does not own dogs so goes to check with a nurse as they would know more. They are talking about a pitt bull type!

The lady [A1] was meeting leaves.

[R2] has a call and asks [VN1] and [A1] about a calming pill, they suggest zylkene and explain what it is to [R2] who then advises the client. Even though [VN1] is there, [A1] takes the lead on both suggesting something and explaining them to her colleague.

[R3] arrives ready for 3pm.

[A1] and [R2] talk about the assessment [A1] had. The lady also works assessing doctors and considers vet surgery customer service much better than them!

[R3] asks if Christina is in, [A1] confirms she is, [R3] asks if she can go and see her, [A1] says yes. [R3] asks about protocol of getting cover and so on as she's been at [Branch] before and it was a bit different.

They chat about weddings.

[Claire] shouts through something to [R2], who says she is working on it, but a number hasn't been recognised, [R2] works out why, finishes and gets out of the system.

I ask the receptionists what the plan is for this afternoon. There are no consults which is very unusual. We discuss that I am a good influence and they invite me back any day.

I wander back through to the back and the nurses are cleaning up all the instruments. The paw wound dog is still whimpering, all day long. [Claire] lets [VN1] know where some supplies are. They decide a certain type of blanket is perfect and decide to ask [George] to order some in. [Claire] asks about the sample [VN1] was collecting, there is not enough. [Claire] had packed up the sample, missing one. There is a problem with barcodes on the samples, [Claire] suggests making a note on the form but [VN1] thinks it would be easier to call and ask them so she does. The code on them is wrong, the company's fault not ours, they are sending more, and we need to throw the current ones. They check others they've done. [Claire] admits she hadn't seen this error, it was presumably [VN1] who saw it.

[VN1] asks if [Claire] has something, she says no, [VN1] will print it. A good idea, though then they agree the folder other branches have is pointless and just creates more shredding.

[VN1] notes there is no weight written on the computer file for a dog, [Claire] says [R2] weighed it, they shout through, she suggests checking the consent form instead. Doesn't seem like [VN1] can find it, comes in to check the board but she is not on there.

It goes quiet in the back, all apart from a bit of whimpering.

Turns out it was [R1] who did the weight, so [R2] isn't going mad and is off the hook for not knowing. [VN1] comes back to the computer to make a note of it.

Dr. (R2)  
fluid &  
exposed  
bacteria

Branch  
Differences

Dr. Temporal

Other  
company's  
error

Error -  
Communication  
Instrument

[Claire] says she will start the hovering. [Practice Cat] comes out back for her lunch. [Claire] feeds the patients and checks on one they have been worried about, she lets me know they worked what is wrong, he is hyperthyroid as well as diabetic (and his owner is blind! – the stay or go cat).

I come back out as [Claire] hoovers. [Practice Cat] comes with me.

The ladies on reception are dealing with an arrival of new magnets. [A1] had been through creating them with the company and said it was hard work, but after they had been finalised they came very quickly.

[VN3] brings [George]'s dog back. He has been at a school all day and has been very good.

Customer comes in for collection of his dog, [R2] lets the nurses know and comes back to book the follow up appointments. [VN1] comes out and asks [R2] if all done, she says nearly, [VN1] checks the 2 day is a nurse's appointment and then they confirm the next is 10 days. [VN1] says stitches out may require sedation – she advises [R2] how to book him in. [R2] says I'll sort out payment and then you can bring the poor whimpering dog out – the client was pleased as it was cheaper than the estimate, [VN1] explains it was due to a shorter operation.

from VN's  
magnets  
stitches

I see [R3] for the first time, she may have been in with Christina this long.

[R2]s jokes does Christina ever get off the phone, they think maybe she took the phone off the hook on purpose.

[R3] asks if she can take this time to write down some notes from [A1].

[R2] tells about a bump to her head!

New R  
Learning.  
Adding  
errors  
rules

[R3] learns that time sheets, holidays and sickness needs to go through to [A1], otherwise anyone who is in [Branch]. [R3] takes a note of the private line.

[Claire] lets [A1] know she is alone on Friday so makes sure she books nursing appointments for any day other than that, especially as she is out for a meeting at some point.

[George] has earlier suggested that the cat they were worried about can have extra meds as was sick – [Claire] says to [A1] she is not sure if the cat can go home or not, as [George] advised that he could stay in but [Claire] is not sure why and says if he does then he'll need his insulin, [A1] and [Claire] discuss that have an open bottle.

Owners come in to collect their cat, and [A1] goes through to let [Claire] and [VN1] know. [Claire] comes out and explains the process.

[R3] and [A1] are on the computers, [R2] is out the back getting ready to head off by the looks of it. [Claire] asks [R3] to book the cat in for follow up. [R3] check whether it would be a nurse clinic, [A1] says it would be.

[A1] has a difficult call, she gets the notes up and then needs to check with the nurses about what they mean. [Claire] says the notes don't give enough information, so it will need to be sent to the vet.

Pos  
Sung

Pos  
Value of  
Branch  
Managers  
mid level  
managers

It strikes me that [A1]'s role as branch manager is very different to the practice manager's role. She is like a receptionist with more duties and responsibilities. She is always active and visible. In comparison the PM are not visible at all, working in their small office at the back of the building. I am unclear what their role is as yet.



[A1] seems to cover all reception duties, some nursing type duties such as holding patients and giving eye drops, several admin duties such as the rotas, ordering and postal, and some marketing duties including the new magnets. As well as this there is quite a lot of training at the moment for new staff or staff moving branches. She is classes as admin in the SNA but is clearly a boundary spanner between admin and reception.

Broker

There is definitely a staff divide in some cases, but training is given across all the branches and many of them seem to have worked at more than one branch. This may explain why there are less structural holes in the sociograms.

[A1] hears [R3] on the phone saying she needs to check a price, she tells her price list is behind her. Instead she asks [A1] and she lets her know the prices.

Even while on another call [A1] is able to check that [R3] is answering correctly.

[Claire] comes out to talk to [A1], she thinks that a patient has a condition which she thinks [George] may need to check.

Pop sitting

After a phone call which [R3] received, there is confusion over rules of pet passports, [Claire] and [A1] look it up and find the answer together.

[R3] has got a call from someone that called earlier regarding the zyklene, there is a discussion about who spoke to them and what was recommended.

At 4.15 [VN1] is able to leave. [A1] goes into the back to talk to [Claire].

Key prep - busy

[A1] has a call and questions the system. It seems to be someone from another branch who thought they were supposed to call Christina, but Christina has just said she's too busy to speak to her. Actually she had already called! Wants to know about billable hours for tomorrow which is another work function show thing.

Good space

The door from reception to the back is very useful for keeping the girls all in contact with each other.

[A1] and [R3] talk about the pigeon shooting event that the group are going to. [R3] has done it before, it would be an opportunity I think for her to take the lead and teach others.

[A1] gets another internal call.

[R3] asks if she can look at shift times with [A1], who says she just needs to email this. She says ok let's have a look. She can give her some idea but they need to check with [A2] about when [R4] is starting.

[R5], [from Branch] calls, gets [R3] but asks for [A1] - an emergency has come in to [Branch] but they have no vet there at the moment, she wants to know if [George] is available as the on call vet. [Sofia] is due on tonight at [Branch] and [George] asks if she can see it - but they realise that times have been blocked out there until 5.30pm which is a way off. [George] says it can come down, at emergency costing, or wait at [Branch] for [Sofia].

Pop sitting  
Sofia

[Claire] tells [A1] that she will have to change a meeting, she says she knows.... [A1] does this later in the evening successfully.

[A2] calls straight back, they will wait for the normal opening hours, the girls say how it is amazing that an emergency can become not an emergency when there is more cost involved.

[This case went to [Branch] in normal hours, to [VS3], not waiting at [Branch] for [Sofia] – see the conversation between [A2] and [George] at [Branch] on Day 3.]

*Roles  
Doc*

[R3] is going to do some marketing, they are trying to work out what time this would be. This wouldn't be for a while and may depend on what days the new manager will work once [Administrator] leaves. They leave this discussion for now and go back to normal rota questions. [A1] says she'll have to ask [A2]. They decide they are confusing each other, [A1] says she wasn't told any specific hours so is guessing.

*Sofia  
Rob  
Sofia*

[Claire] asks [A1] to ask [George] to check on a cat inpatient, if he can't [VN1] needs to be called back from [Branch]. [Claire] says she is contactable on mobile later this evening if needs be. She wants to be told what happens with the ill cat – the owner hasn't rung, which they are surprised about and [George] hasn't called her. There's a chance she might just turn up.

[Claire] leaves at 4.45pm.

Christina is out and talking to [A1]. She gives some paper work to her. There is still an issue from before and she and [A1] talk about it for a moment before Christina leaves.

[R3] talks about the new branch manager (I think at [Branch]) who is also a nurse and will therefore perform both roles.

The girls talk about the HR managers they work with. Unfortunately I can't hear it very well as there are two sets of clients who know each other and are very loud!!!!

[George] comes down, he says there should have been another option to the treatment of the emergency, which is to send it to [VS3] to wind him up! [Which ironically seems to be what happened, and [VS3] was indeed wound up!!!]

The girls talk about part of a new system, [R3] says that [VS4] has said it should be working now, [A1] wasn't aware and says how the computer still doesn't let them do this.

*Rob  
Sofia*

[George] has finished his appointments for now and asks [A1] about the cat who can or cannot go home! [A1] says she was just about to ask about him, [George] says please call her and see what she wants, the cat can stay here if necessary.

*End-  
records*

[A1] brings up another case, whereby [Claire] apparently remembers a vet saying it was just a fatty lump but there is nothing on the file. [George] suggests that the dog needs to come in again, saying 'its strange we can't find the record of the results, if she can pop back in for normal consult, [George] will do the test again for no charge'.

[George] relates about the client, owner of the stay or go cat, [A1] calls her, but she is not answering, we are still not sure if the cat is going home or not.

[A1] asks [George] to check on the cat [Claire] had asked her to ask him about.

[George] takes his cat back upstairs after [A1] and [R3] have said goodbye to it.

[R3] has been on her on the front desk for a while, [A1] comes back and can guess who she is talking to on the phone by the advice, after the call she says she has already given her the exact same advice.



R3 Learning Rules

End Words

[A1] asks if [R3] wants to give the consent forms a go. [A1] says one patient will be haematology, [R3] asks but how do you know that? [A1] says because she's been in so much she knows what bloods she has had.

The owner with the missing results calls, [A1] picks up and explains the situation, being very apologetic and helpful to the owner trying to fit them in. They are going to come back in shortly. [A1] was worried she would be cross, but she wasn't.

The girls go back to the consent forms, [R3] is still asking how [A1] knows which one. [A1] explains which name to put on the form. [R3] asks about an abbreviation, the notes and the quote don't quite match, so [A1] asks [R3] to email the vet and ask what he wants doing.

[R3] says these totally confuse her, [A1] assures her she'll get used to them. [R3] asks what goes first, so [A1] dictates what should be written on the form. This is in the order that the vet would do too, [A1] explains about doing FIV tests under GA so that if they are positive then the cat is simply left to go to sleep, this is I presume RSPCA cats! Interesting for me, that they are not kept. The ethics of this is not disputed by [A1] or [R3].

[R3] moves on to ask where printer paper is kept and asks if the printer is the same way as theirs ([Branch]), she says it's the only thing that is the same.

Oppositional Interactions  
Terminator

[George] says he is done and to keep him informed about the go home or not cat. He is about to go when [R3] asks about injections, [A1] says oh yes, one cat at about 6pm ish, and then they consider when the insulin should be for the stay/go cat. [George] calls back 'all done'. [A1] said she'll give the cat some food, she goes, and is back saying he is not interested in it.

[R3] asks if she can do the hovering early but [A1] says someone is coming to pick up the cat shortly so to wait. She asks about the bins, but that's also too early. [A1] calls her an eager beaver.

+ Rules  
Informed

[A1] says that as its [George] they don't need to do the answer phones, [R3] is a bit concerned as her first day will be an evening when she'll be on her own. She asks if there is information about what to do and [A1] shows her the folder, talking her through it as it's a little old and might have changed - the only other thing is to make sure the outside light is on. [R3] asks where the switches are and [A1] shows her.

The lights go off just as a client comes in! [A1] realises that the phones will be off too, she runs up to get [George]. It is possibly a power cut outside as everything has stopped. I am thankful my computer is on its own battery!!! Beeping reigns and the client, [R3] and I talk that hopefully back up batteries would be kicking in where needed. [A1] lets the client know that his cat is ok, and gets [George] to come back out to talk to him.

Not Strong

[A1] says that she has never had this happen before. They think it is an outside problem, [R3] goes to check the street. [A1] is worried about the phones, [George] suggests she will need to use his mobile to call another branch and they will have to take our phones. We think its outside, but [A1] goes next door to check with the neighbours. Thankfully, while she pops out the electricity comes back on!! More beeping ensues. The girls question what has and hasn't come back on. The phones are resetting, [George] comes in to check, [A1] asks about the blood machines resetting. [George] says it should be alright. She thanks him and he goes back up. [A1] tells [R3] where all the fuses are, but admits that she wouldn't really know what to do once got there. [R3] relates a story about it happening to her when she moved out from home. [A1] helps [R3] set up the computer after its restart.

Notes

They go back to discussing the closing procedure. [R3] asks if it's eerie on your own at night, but [A1] says it's mostly ok. They discuss locking the door when leaving the desk and putting a sign up to let clients know. They talk about it being nice to do shifts with someone else as they both often work on their own. They are still unsure about the rota, but [A1] says it's mostly done.

[R3] asks about changing passwords and [A1] suggests [A2] will need to do it.

[R3] asks about what happens if [Practice Cat] won't come in.

Client comes in to pick up the tail op cat. [A1] organises all the post op care and the follow up appointments, [R3] goes through to fetch the cat.

Good speaker, on site

The client also comes to pick up the 'shall I stay or shall I go' cat. [George] is called back down to discuss what has been diagnosed because they were not sure what was wrong. He is going to need to have some tablets now too. [George] says he'll leave them with [A1] and tells [A1] that he will want to see her in 10 days. [A1] says to the client she wasn't sure if she was coming in! They know each other well.

The other client has left some things and [A1] legs it out to give them back to her. She is back instantly and goes to get the cat ready with [R3].

The clients have collected the cats and leave.

R3 Learning R3 + Dot

The second main computer will not turn on, if it doesn't work, [A1] asks [R3] to email [VS2] an error message. In the end they do this together with [R3] reading out the error message and [A1] writing an email.

[A1] tells [R3] that any computer problems she has, [VS2] is the best person to go to.

[A1] and [R3] chat about TV.

[A1] says to [R3] do you want to do cashing up, she says oh yeah I've not done it here before. This includes a whole new form [R3] will have to use, [A1] points out where these can be found.

[A1] finds that something has leaked, perhaps due to the power cut, she says she will email [Claire] to make sure it's ok.

[R3] asks [A1] to go through some points on the new form, [R3] sees that one payment is missing on one form, they find who it is and then find the payment. The [A1] says she checks they all add up, and goes through the payments. [A1] says you need to do the credit card machine, need the totals, [R3] asks what do I put here, [A1] says if there is a case where they have no change, then you put the amount taken and amount you are sending over separately. They then look at the card machine, [A1] shows which buttons to press and it turns out it is similar to what [R3] has known from [Branch]. Then [A1] checks what she does at [Branch] and says it's the same here. They discuss how [Administrator] calls at 7.15ish and what has to be told to her. The float also needs to be counted. Once it adds up they can print it. [A1] shows where to put in the totals. [R3] says how she would write on another form as well, plus the book and envelope, [A1] says it's just book and envelope as they have the separate new card. [A1] says what to write on the envelope, where to sign your name which is a bit different to [Branch]. [A1] says how [Branch] starts a new page in the book, but [Branch] she says goes underneath. She says she and [Claire] are a little ocd. [R3] asks where it goes, [A1] says I'll show you where the safe is and tells her the code.

Branch clips

[VS2] has replied about the computer, he just says to restart it again or call the company, [A1] says she will do that in the morning.

Emails  
Instruments



[A1] asks if [R3] has heard back from [VS3], she has and has done the thing she needed to do.

[A1] says to [R3] they will need to put eye drops in a cat before they leave.

They talk about out of hours treatment at [branch], where there is only one vet on call, apart from sometimes using a company.

At 7.13pm [A1] sets about hovering. [R3] joins her mopping. Its quick and efficient work, the girls are obviously keen to leave, as I am after another long day. [R3] asks about mopping the toilet too, yes you do.

[A1] is ready sitting at the desk for [Administrator's] call, it is barely five seconds long, but [A1] can tell if she is pleased or not from her response. [A1] tells [R3] that she thinks [Administrator] checks on [Branch] only because they can be quiet despite being a big practice. A couple of big ops today has boosted their total above the norm, [A1] explains this to [R3].

I ask [R3] why she's moved from [Branch] to here and she says it is much closer to home, though she will be sad to leave [Branch].

I collect up my client info sheets. Over the two days only one client seems to have looked at it, they laughed at the 'not observing client behaviour'. I have made myself visible and tried to be approachable, but for the clients at least I seem to have melted into the background easily. For the staff perhaps not so easily, [George]'s jokes about observer effects for one. But in general I do believe they are acting normally, perhaps just a few more 'thank you's than normal to each other!??

The girls go to do the cat's eye, get the washing in and lock doors. Another day is over and [George] is left upstairs to look after the place as we all leave.

## 2. Transcript

The following transcript is from the interview with Paul, a Director at Field View Vets. Specific names and details have been blacked out. The generic coding of intra/inter/social interactions seen in the observation notes was not conducted for the interviews, as this was carried out in the observations primarily to maintain engagement with the long working day's processes, rather than as a source of themes or codes.

Analysis of the interview transcripts was inductive, following the methods of Braun and Clarke (2006)'s thematic analysis as described in Chapter Six.

Initial codes can be seen in black handwritten notes, while the end themes to which these codes belong can be seen in blue (structure and facilitators) and pink (challenges). These themes were developed iteratively with analysis of observational data and therefore they are comparable and assist with triangulation.

TK: So obviously this is just sort of a hopefully quick ish chat about my project and some of the things that I have seen since being here, as you are hopefully, probably quite aware, the project is about teamwork and how everybody works together to get everything done in the day. So I wonder if just to start with quite an open sort of question, I wonder if you can talk about how you perceive the team in which you work personally?

The team here? Umm I think we are probably quite efficient at getting through work, I suspect we could communicate better

TK: OK in what way?

I think sometimes we [2] I think with the staff, because it's such a long day from 7 till 7, then there's not necessarily the continuity that they're there might be between 9 and 5, so I think for other branches that's easier, so if I think the big one is the kennel area where that person comes at 7 o'clock that probably changes part way through the morning and then changes for the evening as well, and no other branch has that issue, because their kennel person probably wonders in at 9 o'clock and sees the day out and finds themselves solely in charge of the animals there, so that I think is an issue. I think other than that I'm not sure we're too bad at err seeing messages on, I don't know, I've never watched us I guess. Umm I think the vets communicate well as a team, umm [5] talk reasonably well as well to nurses and receptionists.

[We hear a noise outside, people want to make lunch in the kitchen next door]

TK: Cool OK, well obviously when I asked the question you think first of all as being here, as in being in [REDACTED] I wonder if you can talk about because obviously I presume you do some out of hours, well you may be on call and go elsewhere, would that be the case, and then you'll see different branches, I just wonder if you can talk about sort of maybe the team here compared to the [REDACTED] team as an entity?

OK well generally out of hours would be done here

TK: Yeah

I do the odd days elsewhere. Umm [3], what in the way I communicate with them when I get there or how they?

TK: what, I mean do you have interactions with people outside of [REDACTED] very much in terms of everyone and anyone?

I mean obviously nurses are

TK: Swap

Swapping around aren't they, so umm I would and I think that's good for them and it's good for us

TK: What sort of helps, what's the good thing about the nurses swapping?

Team - Hier  
Efficient  
Could communicate better

error - team

Lack of continuity of staff in long day  
Temporal dimension

Vets - team  
Communicate well as team  
but to MR  
- respect value

Swapping nurses good  
Spontaneous nature

diff way seeing things done  
Spatial + errors

I think it just gives them a change of umm scenery, a different way of seeing how things done, I guess probably helps, everything happen the same at different branches which is and umm yeah to the point where, crazily you know umm the premed that might be given out down at [redacted] might not be the same as the one given here, well that all changes now because people are moving around then that's all been standardised and so I think it has helped standardisation.

TK: Right yeah

Umm I guess these days I don't have any contact at all with any of the large animal staff at all I guess, other than directors at meetings, umm [3] I mean my perception is as much as probably our staff don't see it, I don't think we are actually as bad at communicating as they think we are

TK: Why do you think they think you are!?

Well they, because it's always been an issue and I guess that's the problem with a big organisation spread over a number of different places is the the dissemination of information, umm and the inaccurate dissemination of information sometimes, things leak out don't they from big organisations, and umm err so people hear things which are not accurate before necessarily it should have been, the correct piece of information should have been heard.

TK: Sure

Umm but I think we are getting better at disseminating the correct information from the top downwards and outwards, and hopefully we've got stuff in place to make that happen, through [redacted] and through [redacted]

TK: Yeah sure

We try and do that

TK: OK cool, umm and so then taking it even bigger, so [redacted] is part of [redacted] does that have an impact on you at all as sort of a day to day kind of a work?

Probably has less effect than it should.

[more disturbance from outside!!]

So [redacted] umm well more and more we are integrating with them and

TK: In what sort of

Taking on board, well use of umm specific drugs that they're there's a whole thing about [redacted] buying their drugs from, as a big group, umm, so umm we are more integrated with that, certainly umm literature and things like that we are making more use of, umm we're, we're more involved at a sort of umm a guess a board level and a decision making level than we had been in the future. So certainly between [redacted] and I we are attending meetings on a fairly regular basis with other members and so and umm it has a positive effect on, on the practice umm [2] but umm we have had, we have done sessions where we've swapped with so [redacted] practices in the south west, we've umm swapped a vet and a nurse for the day, so not to work, but to visit the practice and have a look around and watch them for a day, much as you've been doing with us I guess, umm and that's really



interesting, so umm see people working in different ways and seeing how they do them, so that's been really positive err and a good way to get to know guys at umm those practices

TK: Absolutely

So there is a, it is quite a good thing because it does have a [2] it takes away that competition issue and puts everyone much more as a working towards the same sort of a same sort of a goal so umm yeah we wouldn't umm we wouldn't actively compete with another

TK: Sure

Practice, would we, I don't know, I mean we haven't really got any on our boards but umm certainly talking to there is a there is a in the umm on. I think there are two practices which are practices which are next door to each other and they've actually said it's been quite a positive thing to compete against each other

TK: Ah well there is that

So, so sort of I don't know, but it is good, because umm [4] yeah you feel part of a bigger organisation umm and hopefully all heading in the same direction, positive direction hopefully, umm it's an antidote to big corporate practices, we will see

TK: Yeah, laughter. OK bringing it back down to umm talk about you know working with and so on can you talk to me a little bit about being a Director and how the sort of Directors as a team, how you think that functions and

OK, [3] it has its moments! Umm [1] I think the group as a whole works well, err there's quite a lot of partners and some people would say that that's a negative thing, I think it's not necessarily a negative thing, sometimes it takes a while to come to a decision

TK: right sure

But equally I think it does dilute maybe some of the stronger characters, maybe some of the more wacky ideas! Umm [2] so I think yeah it does mean it doesn't get quite as personal if there was maybe two or three partners umm it probably means that ultimately probably the right decision gets made because enough of an oversight of that, umm [2] as you know we are working at the moment as part of the growth accelerator along with and that's where we are heading off to this afternoon

TK: Oh OK right ok

She's running a workshop down there for us this afternoon. So umm so again hopefully we're improving our strategic management as well as our personnel management and I think it has had a yeah I mean it has already had a, made a difference to how we we function as a group, umm [3] it's become much more [1] business minded I guess and much more umm strategic than it ever was, it was much more a sort of friendly bunch of guys sitting down you know on a Tuesday evening and chatting through things whereas it's much more umm business, but it has to be these days

TK: Yes, yeah

Company takes away competition

Positive bet competitors

Structure extended team

Feel part of bigger org. Antidote to big corp.

Working with diff perspectives  
Directors work well time to decision

dilute stronger ideas  
right decision gets made  
Growth accelerator

improving strategic & personnel management  
A bus mind was friendly bunch guys

Growth of organisation

Get along surprisingly well  
Honestly no grudges

Umm so there's some strong characters but I think we generally get along surprisingly well and honestly and yeah no, there's no grudges held even if there's, it can get fairly heated at times but you know the meeting is fairly, it's all fairly 10.35

TK: Yeah you've got quite a good mix of I think of the sort of people from the different branches and species, specialities, and do you find

Mix of abilities  
Mix priorities

Yeah and actually a mix of umm abilities and [redacted] really you know he's very business driven and you know, you know for him that's really important, for other people it wouldn't be, and you know, there's other things that would take a priority and umm there's quite a nice balance of that sort of umm you know within the, there are other people who are much more financially savvy than others and yeah others who are much better at maybe managing the personnel and so the, and again that's the advantage I guess of having quite a large number of partners

Different perspectives  
Value

TK: Yeah definitely, ok excellent. Umm so if we move onto the, I guess one of my main focusses has always been the interprofessional aspects, obviously how you as a vet professional, work with members of other professions, so the vet nurses, and then if we think of receptionists as maybe one group and then the admin sort of practice manager, HR manager type things as maybe a fourth, I wonder if you can talk to me a little bit specifically about how you find the interprofessional working within your team?

Respect & value

low part of daily life

Treat as adults  
Treat as professionals

Not to mention  
family atm

More respect  
More used to be  
- not implications

[8] I don't know [8] I guess I don't know, you spend so many years here don't you, that you umm it just feels part of your daily umm [2] daily life, but I hope that we all [1] communicate you know and treat them [3] as adults, as other professionals I guess, I think we are not too high and mighty to the you know [2] I think we try and have a fairly family atmosphere, it's not too hopefully not too regimented. Although it's more, it's certainly more than it used to be, umm and that's had its umm implications, perhaps less so here than [redacted] [redacted] had its issues with large animal receptionists, umm maybe feeling that the power that they had has been slightly taken away by other members of staff taking that on, you know never, you know certainly somebody like [redacted] is a relatively new position, she's taking on new responsibilities all the time

TK: Absolutely

And that's had its, caused its ructions, umm but I don't think we've done anything without listening to anybody's umm opinions we are trying to get better at having our practice meetings on a more regular basis, umm and you know part of that is to push towards IIP status [2] but I think we are quite good at cross communicating between groups, in a friendly fashion, I hope, we try to!

TK: Yeah, I mean from what I've observed certainly I mean I think it's quite interesting at [redacted] when I first came here I was sort of walking in the door and there was just this sort of bunch of nurses and I was sort of so pleased to see, I thought it was excellent to see so many nurses working in one place, and you've got your student nurses and your qualified nurses and then sort of thought when you came in you were sort of surrounded by the nurses as well and it was really kind of outnumbered by them, but in a really sort of a positive way and they all seem I mean they all talk very fondly of your really

Yeah

hier changing roles power

Issues of r. Power taken away New position of HR PM

listen to opinions Practice meeting IIP status push Good at cross com?

formal infrastructure

hier info. cascade



TK: And seem to be very happy working alongside you in various ways, so with everything I've seen interprofessionally with you specifically and the nurses has been quite good

Yeah, they are fully aware, I'm capable of being umm grumpy

TK: well I'm sure they can be!

But hopefully they don't take that to heart personally, because it certainly isn't, yeah I mean hopefully, I would like to think that everybody working everywhere in the branches is you know tries to be umm yeah tries to make their working relationships positive rather than negative, otherwise it would be a negative place to work. Umm [2] people like [redacted] are great aren't they, you just, very good umm intermediary type person so

TK: Yeah yeah, I wonder, I am trying to sort of bring the whole thing to a real life, so its visual to me as an outsider, umm this might be quite hard putting you on the spot, but can you think of a specific time when you have worked with someone from another professional group to sort of work through maybe a problem or a difficult case that's come through, or just a general issue with the practice or anything at all?

[3] hmm I can think of loads of clinical situations where certainly my, or the senior nurses are just invaluable, like

TK: In what sort of situation?

Well if you like, [redacted] who has worked, has been a nurse for quite a long time, umm worked in other areas, has worked in a big city PDSA, so has vast amounts of experience and probably has seen everything! So yeah there are times, certainly out of hours and things when you know they can be really useful for bouncing things off umm [redacted] another one, got lots and lots of clinical experience, umm you know, probably could do 90% of the things I do on a, a day to day basis, they might not be happy about doing it but certainly umm certainly diagnostic type things like, they are a, their appreciation of what clinical signs you know, what diseases might lead to those clinical signs you know are pretty good you know because they've seen it so often, so yeah, so bouncing that sort of thing off them is great, umm on a personnel level, making use of [redacted] is fantastic because she's such a good umm [1] she's a good ambassador for the practice, obviously she will, will have her negative times but she will, you know ultimately she will [1] she believes it's the best practice in the area and therefore she umm she's able to tell the nurses that, she's a really good ambassador between the Directors and the, certainly the nurses, you know

TK: Yeah

Even if she doesn't necessarily agree with the decision that's made, umm she doesn't necessarily take that to heart you know she will still be positive about that to her staff and that you know that's, that's worth a ton really. We've had senior nurses before that haven't been so, so good about that umm and that's caused issues

TK: Yeah. My next sort of question was going to be who do you see as a sort of an expert in this field of being able to talk to other professions and be a role model of that kind of working, but I'm guessing from what you're saying, without putting words in your mouth, that might be [redacted] really?E

team ethos  
capable of being grumpy  
everyone tries to make working env. the best  
Head of Great Intermediate  
Mid level managers  
brokers

Senior nurses invaluable clinically  
Value

MN resp  
own value  
Opt balance ideas  
MN could do 90% what I do  
Experience  
MN ambassador for practice  
IM have reg. MN  
MN ambassador bet Dir & Nt

Key people  
value mid level manager  
brokers

MN +ve if worth a ton  
Senior Nt but not team player

Removed two pages due to inability to anonymise for this report

History  
Practice prog.

Probably 20, well go back 25 years there wasn't a nurse in the practice, umm and vets were still doing the anaesthetic on their own and shouting through to the receptionist to come and change the, you know

Role of  
VNs  
Accountability  
Different  
best

TK: So it's changed a lot

And there's still practices out there that you know like that so you know so it has completely, it has changed hugely, umm in a relatively short period of time. If you go back even 10 years and there'd be, I don't even know how many nurses, and there's loads isn't there, across the practice you know

TK: Yeah yeah

You'd think no way, so it is it is a different beast to what it once was

TK: That's quite interesting, one of the things I, I kind of found quite fascinating when I was starting the PhD was this historical change of the vet practice so as we say thinking about when vets were working on their own and then they would have trained up someone who would be receptionist slash veterinary nurse type person, and then as nurses started to get trained elsewhere and then employed and so on and now exactly as you say the [redacted] model is very very different from that. And kind of two aspects of this historical change that interest me are the recent professionalisation of vet nurses and the increasing accountability and so on

Yup

TK: And then on the other side again as you've mentioned is this rise of sort of HR managers, [redacted] type people and so on

Yeah yeah

Accountability  
VNs not  
altered anything  
Trust - too much  
Too much  
Trust in VNs  
they are  
uncomfortable

TK: Umm can you tell me a little bit about how, firstly if we start with the nurses, have you seen any change with this sort of the registration, the accountability, has that affected how you and they work in any way, or has it sort of just flowed in?

*Trust - too much*  
I think yeah I don't think it's altered [2] I don't think it's altered anything, [5] I hope we put a reasonable amount of trust in them, umm [5] no I don't think it's umm altered anything, I think sometimes maybe we put too much in trust in, I know there's occasions when [redacted] uncomfortable maybe but umm certainly with the trainees and things, umm she's very much more mothering of them than maybe we would be, umm and so you know, she won't let them take on the next responsibility until she's totally happy, like things like going onto the on call rota and things like that you know she, she's really adamant that that doesn't happen until she's 100% sure that they are capable of that of doing that, umm so no I don't think it's changed anything, because I hope that we were pretty responsible anyway

TK: Yeah I mean that's what I was going to ask, if you had that sort of trust relationship beforehand it probably wouldn't

Yeah I don't think, yeah I don't think it's changed too much how we function

Not  
changed  
function

Accountability  
& change

TK: Sure. And so then what about on the other side because you say how [redacted] is taking on more roles

Yeah that has I mean that has you know

TK: How does that affect you as a vet?

I guess it's taken away some of the umm umm management side hasn't it and some of the paperworkey side more and hopefully made us much more of a professional body [3] I guess it's stuff that we have to do now that we previously we probably had to do but we just didn't bother umm if we're honest, umm but it has to be done doesn't it, and umm I guess practice has just become more corporate hasn't it and more of a business, and you could in the past I guess, get away with your receptionist doing your umm umm anaesthetic and you know not worrying about whether your HR was up to speed, umm but it's a different world isn't it

TK: Different now

Totally different world, and yeah, client expectation is so much greater, umm you're much more likely to get complaints and sued, 20 years ago people didn't worry did they?

TK: No!

They just accepted it as if something when wrong, something went wrong, whereas they don't any more, umm so so that sort of thing has to be much tighter and yeah paper paperwork has to be much better and record keeping has to be much better, and so yeah, people are much more aware of their rights as a member of staff and therefore that stuff has to be umm, has to be right, I mean you've got if you go back 20 years I bet nobody signed a umm contract, I am sure they didn't, I never did when I joined, because you got, you might have been given something but you know there was no, whereas now, crikey it's umm, umm everything has to be umm by the book. Which is how it should be, it's that's right isn't it, but it has meant that people have had to come in to take on that, to make sure that happened I guess, umm and that's not the Directors because they are terrible at that sort of thing

Laughter

There has to be somebody in there like [redacted] to chasing all the time to make sure that everything happens and so it does, and it's good, umm but it's another person on the payroll

TK: Well yes. I was going to say I mean do, one of the only sort of, well I can see mostly positive things about having these different professions working together and as you say taking, employing someone who has got special skills in whatever areas be it the veterinary nursing skills or the PM type skills, can you see any type of drawback to you as a vet, of having these other professions?

No [3] no. Because all that stuff that should be happening that wasn't happening because we are too busy doing clinical stuff is yeah we are vets because we want to do clinical work effectively, well that's not exactly true, maybe there are vets out there who don't want to do that [redacted] would be an example, he is quite happy to drop some clinical work to do some you know other stuff, but there are those of us who are you know doing it just because we want to do clinical work, so why would we want to be getting people to sign contracts, chasing somebody to sign their contract, so I don't

Just value  
- admin tasks  
- provide different  
perspective

PMs take  
away  
paperwork  
Am more  
us more  
prof. body  
and get  
away with  
being busy  
Totally diff  
world

Client  
complaint  
Rights of  
Staff

Reg have had  
to come in  
to take that  
or  
Dir. terrible at  
it?  
another person  
payroll

Vets want  
to do  
clinical  
work  
too busy  
for admin

Diff perspectives - good  
Also example diff motivation



see there's any issue. I think, I think fitting together that web and certainly [redacted] trying to do that at the moment, fitting together the web of how those people interact and lines of, lines of communication and things is still ongoing and we haven't got that right, and again it's lots better than it was but umm there's still discussions going, going as to where you know, where those people sit on a grand, grand graph of of bodies, it's easy to put [redacted] above the umm nurses, but then where does she sit in relation to [redacted] and [redacted] and where does [redacted] go and you know, do they sit on the same line as [redacted] do they sit below that, do they, does [redacted] sit below them, I don't know, and that's still on going, or maybe [redacted] sits off to one side completely, you know separate from the rest, sort of linked in there somewhere, so he's busy actually drawing that out on a piece of paper and so he has got his sort of draft yesterday in fact of how he's done it and so obviously not everybody agreed with that and so umm umm so I think that's the interesting bit he's because we're aware that up until now that people haven't necessarily been aware of their direct maybe line manager, we haven't really had that sort of thing until the recent recent past, so we are trying to make that much more clear cut

TK: Visible

And we've got there, got there with the nurses actually I think you know because there was a time when nurses would have come to me and said you know can I do this or can I do that, and I might have half shown interest and sorted it out umm and then [redacted] would have said why did you do that?! Now it's easy because I just say you know your first port of call is [redacted] and yeah, that's great for me! Because it means you know, she deals with it, not me, umm and if she's not happy then she'll come to me and that's fine. Or [redacted] and umm and I think the vets are finally getting around or Directors are finally getting their heads around saying actually you know don't approach me, [redacted] is your first line of call, you must go to her, because the problem is if I say yes and that doesn't fit in with what [redacted] has said to someone else, and that's where we've had issues in the past. Is umm is inconsistency between Directors or even within the same Director umm [3] because yeah somebody might ask one Director or two people might ask two different Directors and get two different answers

TK: Yes sure

And then that really doesn't go down too well. Whereas it's much easier to say actually go and speak to [redacted] Umm because the two different people will get the same answer, and so those inconsistencies we are now ironing out and umm

TK: Good

[redacted] is also pretty black and white about things, which has its isn't always very helpful, but umm [2] it does umm again prevents inconsistencies because she's pretty black and white so. So hopefully everybody feels that they are being treated the same, if both people think we are being unfair, at least we are being unfair to both of them

TK: Yeah sure! Laughter

So, that hopefully will be a good, will be a good thing of the recent changes anyway. So obviously [redacted] there now for the receptionists to feed to and to talk to, umm and so we are now having to learn when receptionists come to us to say you don't speak to us speak to [redacted]

Hier Confusion

Hier organization - promote

increase of line manager making it more clear

for go to HNW

HNW great for

is clear to

or getting used to delegating

not - inconsistent bet Dir

Head the iron out inconsistency

treats people same

you don't speak to us speak to

key peep, middle managers

Value challenges to info cascade

Hier organization, value

Hier. organization info cascade

TK: Yeah ok fantastic, cool

Time check

TK: One of the last thing 35.50.... - Introduction to Social Network Analysis by TK removed from transcript.

Blimey!

Oh my goodness, wow

There's too many lines aren't there, I can tell that

37.44

Well my initial impression is that there too, there are too many different lines going from too many different people, is that unreasonable, or maybe not, what you would hope is that lots of arrows were coming to the same people, is that reasonable, that is what I would hope for, is that the people central to the, so the [redacted] and the [redacted] and maybe the Directors, all the arrows should be arriving at them shouldn't they

TK: And also going out from them if people are seeking information from them I suppose

Whether that's true or not. My impression is that far too many arrows going all over the place, that's almost unreadable that one

TK: So what would too many arrows mean to information is maybe coming from the wrong kind of people?

Yeah or yeah, certainly if they are seeking advice, I would hope that yeah wherever [redacted] is that all the VNs are getting are seeking their advice from her, or certainly the senior nurses

TK: mmhmm sure

Umm or from the vets, yes you are right aren't you, but depends on what they are umm what they are sourcing isn't it, but yeah I would hope to think that information maybe advice could be coming from vets for nurses couldn't it and certainly influence should be coming from [redacted] would like to think, whether that's true. Can I see any patterns? I mean there are there are certainly certain characters who are coming up all the time who are surrounded by arrows

TK: Yup

Oh but they are not all in the same place are we we are all in, I was thinking they are probably in the same place?

TK: No mapped per question

So VN11 here is getting lots of arrows isn't it, so I don't know where VN11 is on there

TK: So if information is coming into them, doesn't necessarily mean it's, actually for them it probably does mean it's coming in and coming out so they are quite central

Too much communication  
Too many arrows for too many people  
Not all arrows arriving at central pt  
info overload

Advice from Senior N  
Hierarchy  
from vets to nurses

Don't know who VS11 is, probably me, but there's not a lot going out from VS11 is there? Or VS24. So these are large animal as well as small are they, they must be?

TK: Yes absolutely, you've got everybody

*Paras  
SA*

Yeah my impression would be there's probably going to be a lot more arrows in and out from small animal VSs than there are from others, so presumably these guys probably are large animal VSs up here aren't they, I don't know, I hope they are large animal ones and not small animal ones! Because there's not a lot. I don't know you tell me you probably look at these things all the time, I'm not sure I can

TK: Well just based on what you were saying there I find this one is quite interesting because you've got kind of a split, and what you actually find is that these are the smallies, these are all the farmies and these are all equine, so like you say I think there is quite a lot of arrows between the small, and then what you've got are some connectors which are these people that are everybody sort of linked to

*key people  
guess  
Director in  
Centre  
pms in  
Centre too*

Oh OK, OK OK. Yeah that makes sense, ok. So presumably in the middle here is presumably, well I don't know who VS25 is, but probably [redacted] correct!], umm but yeah you'd like to think that your [redacted] and your [redacted] were somewhere in the middle there wouldn't you, and your [redacted] and your [redacted]

TK: Yup

Yeah. Hmm.

TK: So then I mean you've kind of been guessing a little bit, I wonder if you can try and have a guess as to who you might be, that's quite difficult because there are so many dots and peoples,

Ohh, could I possible, well you've told me these are smalls over here so that helps

TK: well not everybody

I hope I'm not in the equine one, that would worry me!

TK: No you wouldn't be one of the equine ones I can tell you that!

Hmmm well there's a VN in there who's got lots of arrows going into and out of them, so I'd like to hope that that VN was Kate. But then there's a VN there with lots of, what's the difference between red and blue?

TK: So that will be [redacted] and [redacted] so you've got one of each

So that could be [redacted] and [redacted] then, so where do I envisage where I am. Oh my goodness, who's this over here!?

TK: So that's one of our other type of people

Oh OK. Chhhuhchchuuucchh receiving a lot of, whoever VS28 is I would guess is disseminating quite a lot of information to VS16 so that's either going to be I would hope [redacted] or me. VS16 is receiving



lots of information from lots of people. But not giving very much out. Oh I don't know. Chhhuchhu. Who's that right in the middle?! Who's giving VS25 loads of information, vets and nurses, receptionists. Oh crikey, I'm going to take a gamble, I'm [REDACTED]

TK: OK, laughter

Am not at all am I?

TK: You are actually interestingly right in the middle of them, so you are [REDACTED] So that one there. So basically I mean one of the reasons I chose you was that your numbers are pretty high on everything and that you were pretty central and also in this linking group which you know linking the other branches, the other species

Yeah I should have, yeah I mean there's an equine person down here that probably is a OK,

TK: So I mean is that kind of what you would you would have thought of for you, it's pretty close to the ones you picked

Yeah I guess, yeah yeah I mean I would have some contact with with equine I'm presuming there are probably very few lines dragging me anywhere near farm, there probably isn't any connections is there

TK: Through people

Through people yeah yeah, but whereas I would have direct contact probably with vets and umm receptionists from equine, so yeah ok. So that suggests there's quite a lot of communication is going through me

TK: Yeah

Which is ok, yeah that's interesting. I mean it would be fascinating to know who they who everybody on here is, which I'm not not saying you should but yeah there would be [4] there would be people on there that you would you would want to know, yeah you would hope the information was travelling through. Because like I say what we are trying to do is make that happen

TK: Yes

Umm [3] I presume these could be anything, it wouldn't necessarily be you know, you know, nursing, trainee nurse wouldn't necessarily ask [REDACTED] what umm they wouldn't ask me via [REDACTED] for what antibiotic they are going to inject the dog with, they are going to ask me direct, whereas, umm. Yeah ok.

TK: And just I wonder, I mean do you think these are probably quite stable patterns or we've talked again about how practices are changing quite a lot, do you think largely

I think that this [the species split] will become more and more exaggerated.

TK: Do you think yeah yeah

do have  
some  
contact  
+ equine  
com  
thru me

key person

Rep you  
would hope  
info direct from

species  
nature

species  
split  
more  
exaggerated

Yeah, umm but with hopefully with you'd like to think with potential people in the middle of it yeah but I mean yeah that's the way practice is going isn't it, and any any practice out there that thinks that they are going to survive as a [3] as a mixed species practice is on the wrong planet because they are not. You know, people, this is what clients want to see, [3] they don't want me wandering out to you know see their horse with colic, why would they? So umm so yeah I think that is going to exaggerate isn't it

TK: Yeah. Brilliant

Yeah hopefully with those key figures right there in the middle of it. Crikey that's amazing isn't it, must have taken forever to put the data in for that!?

TK: Yeah there were a lot of you! But ok very quickly before we end, further thoughts

I think we've probably covered where, certainly how the Directors want to see it maybe yeah, where it's been and how it is

TK: Fab ok

Key figures  
in the  
middle

Key  
people  
involved

## 1. Diaries

Interpretations of these raw data began with noting down my thoughts, as well as the inductive nature of the thematic analysis (Chapter Six). The following images show initial thoughts from a) my case study diary and b) my PhD research diary.

### a) Case Study Diary

Thoughts	Themes (Activity System framework)
Email - no one likes it, but they all do it Int - [VN] [VS]	Organisation of work – information cascade; Source of mistake (Instrument)
Family - we know each other Int - [VN] [A] - [Branch] too much - [VN] [VS]	Organisation of work - team ethos (Community)
Trust - Int [VN] [VN] [VS] [VS]	Trust and value (Division of Labour, Rules)
Blame - Receptionists Obs [Branch - VS and VN] Int [VS] [VN] [VN]	Error and blame (Division of Labour)
Branches - [Branch] / relation vs client. Int [A] [VS]	Branch differences – spatial dimension of work; error; reduce structural holes (Subjects, Rules)

Figure 27. A page from my case study diary demonstrating my initial thoughts after the series of interviews at the first Case Study site and their application to subsequent themes.

b) PhD Diary

CS Week 3 - Interview Notes	Themes (Activity System framework)
Name not much on ground influ but yes higher up, a good thing	Extended team (Community)
Equine parapets, not so much else outside except who has lots?	Extended team (Community, Division of Labour)
Equine/Farm R's organise vets	Trust and Value – Value of receptionist (Division of Labour)
E work + nurses lots tests	Trust and Value – Value of receptionist (Rules)
Nurses mould vets – pain relief, more vets	Professional motivation – Pain relief (Object of Activity)
Admin side – only really – all vets + vet & nurses to nurse	Organisation of work – Mid level managers (Division of Labour)
Accelerator course for practice growth	Organisational growth (Instrument, Community)
Name leader of VNs	Mid-level managers, broker (Rules, Division of Labour)
No more future for truly mixed practice	Changing times (Division of Labour, Community)
Directors including PM, HRM, Head VN, Head R's in meetings.	Formal infrastructure (Instrument, Rules, Community)

Figure 28. A page from my PhD diary demonstrating my initial thoughts after week three at the second Case Study, which included the interviews, with application to subsequent themes.